Alma Mater Studiorum – Università di Bologna

DOTTORATO DI RICERCA IN

Economia e Statistica Agroalimentare

Ciclo XXIII

Settore Consorsuale di afferenza: 13/A2 - POLITICA ECONOMICA

ANALYZING CONVERGENCE OF AGRICULTURAL AND RURAL AREAS IN THE ENLARGED EU: THE CASE OF HUNGARY

Presentata da: Dott.ssa Irene Monasterolo

Coordinatore Dottorato
Prof. Roberto Fanfani

Relatore
Prof. Roberto Fanfani

Esame finale anno 2012

Abstract

The fall of the Berlin Wall opened the way for a reform path – the transition process – which accompanied ten former Socialist countries in Central and South Eastern Europe to knock at the EU doors. By the way, at the time of the EU membership several economic and structural weaknesses remained, due to the limited ability of the fast introduced policies to address the socio-economic and historical peculiarities of the "beneficiaries". Thus, after more than 20 years from the beginning of transition, a tendency towards convergence between the new Member States (NMS) and the EU average income level is evidenced, together with a spread of inequality at the sub-regional level, mainly driven by the backwardness of the agricultural and rural areas, which still host the highest percentage of poor people.

In the last decade, several progresses were made in evaluating the development policies for rural areas, but a shared definition of rurality is still missing. Numerous indicators were calculated for assessing the effectiveness of the Common Agricultural Policy and Rural Development Policies, and their role on the convergence process of the EU members. Previous analysis on several case studies from Central and Eastern European countries (CEEc) highlighted the limited knowledge of the local reality in the areas for which the intervention was designed. The characteristics of the most backward areas were insufficiently addressed by the policies enacted; the low data availability and accountability at a sub-regional level, and the deficiencies in institutional planning and implementation represented an obstacle for targeting policies and payments.

This study provides a methodological contribution to the identification of rural areas and the analysis of the changes occurred during the EU membership in Hungary, assessing the effect of CAP introduction and its contribution to the convergence of agricultural and rural counties in Hungary. This country has been chosen as a case study from the CEEc because it was considered by the international financial institutions in the late 1990s one of the best performers in the transition process.

The persisting lacks in time series availability for agricultural and rural areas at a disaggregated level (NUTS 3) determined the choice for explorative techniques belonging to multivariate statistics and spatial econometrics. A mixed methodological approach is applied to a set of relevant variables, chosen coherently with the EU Common Monitoring and Evaluation Framework, with the last findings on the determinants of wealth gaps among the EU regions, and with the new CAP orientation towards diversification and environment sustainability.

Therefore, the next pages aim at providing a basis for understanding the connections between the peculiarities of the transition process, the current development performance of NMS and the role of the EU contribution, with particular attention to the agricultural and rural areas. The attention should be focused on the introduction of timely monitoring and evaluation instruments, and on the need for data validation and analysis, in order to make policy work better. More targeted – and therefore efficient – policies for agricultural and rural areas require a deeper knowledge of their structural and dynamic characteristics.

To Alessandro, for all the reasons which lead us to happiness.

TABLE OF CONTENTS

INTRODUCTION AND ACKNOWLEDGEMENTS 7

LIST OF ABBREVIATIONS 14

CHAPTER 1 15

UNDERSTANDING THE NEED FOR POLICY REFORMS IN TRANSITION COUNTRIES: CLASSICAL GROWTH MODELS VERSUS THE TRANSITION EXPERIENCE 15

1.1 The political economy of transition: out from the neoclassic model 15

1.2 Beyond the numbers of economic transition 23

1.3 Rising inequality in transition countries 31

1.4 The need for data reconciliation 36

1.5 Reforming agriculture in transition: the CEEc and FSU perspectives 37

CHAPTER 2 42

ASSESSING THE ROLE OF AGRICULTURE ON CONVERGENCE IN THE LIGHT OF THE EU MEMBERSHIP: THE CASE OF HUNGARY 42

2.1 The quest for convergence in the enlarged EU 42

2.2 Methodology 45

2.3 The sample and the data 52

2.4 Analysis and results 53

2.4.1 Assessing convergence between the NMS: a non-parametric approach 53

2.4.2 Country convergence versus sub-regional divergence in Hungary 56

2.4.3 Evaluating the role of CAP introduction on the convergence path of the Hungarian counties 60

2.4.4 Agricultural policy reforms and agricultural labour productivity in Hungary: a successful story? 65

CHAPTER 3 **69**

CAP REFORMS AT A GLANCE **69**

3.1 CAP support, farmers' income and distribution inequality: more than a question of measurement 69

3.2 Understanding the poverty issue in agricultural and rural areas 74

3.3 The long reform path: the CAP between dated barriers and future visions 83

3.4 The CAP towards 2020: a tool for a wider Europe? 87

CHAPTER 4 **95**

THE CHALLENGE OF CAP INTRODUCTION IN HUNGARY: ISSUES AND PLAYERS **95**

4.1 The EU perspective: instruments and support measures for agriculture and rural development in Hungary 95

4.2 An overview on the Hungarian agriculture in transition toward the EU 101

4.3 After the EU accession: visions and reality for the agricultural sector 107

CHAPTER 5 **116**

MAPPING AREAS FOR BETTER POLICY EVALUATION: AN ANALYSIS OF HUNGARIAN RURAL AREAS **116**

5.1 A background scenario for analyzing rural areas in the NMS 116

5.1.1. In search for a shared definition of rurality 118

5.1.2. Rural development statistics and data sources 122

5.1.3 Rural development policy evaluation in the EU 125

5.2 Methodology 128

5.3 The sample and the data 129

5.4 Analysis and results 132

5.4.1 An application of Principal Components Analysis and Cluster Analysis to the Hungarian rural counties in 2003 132

5.4.2 Catching the enlargement effect: an application of Principal Components Analysis and Cluster Analysis to the Hungarian rural counties in 2007 135

5.4.3 Testing the classification results through Discriminant Analysis 137

5.5 Discussion of results 139

CONCLUSIONS 143

REFERENCES 147

LIST OF TABLES 156

LIST OF FIGURES 158

INTRODUCTION AND ACKNOWLEDGEMENTS

"People respond to incentives"
S. Landsburg, 1993

"I am a child of two epochs. One man inside me understood something and the other shouted something completely different"
N. S. Khrushchev to the poet E. A. Evtušcenko, 1971.

Two decades passed since the beginning of the transition process in the former Soviet Union and in the Central and Eastern European countries (CEEc), which slowly moved towards the European Union (EU) home. Several analyses were devoted to understand the characteristics of transition in the different economic fields; a work they fast realized was harder than thought. In fact, after the fall of the Berlin Wall, Western analysts knew very little about how the former Communist system worked, and simply looking at the previous statistical accounts couldn't help, due to the different accounting system used and the numerous distortions which characterized all the sectors. Thus, the first attempts to build up consistent time series and to reconcile the economic accounts were much demanding and quite unsuccessful. At the same time, transition started and it required to be governed. Therefore, even in the absence of clear ideas on the initial economic situation, analysts preferred to opt for the usual growth models and recipes. In fact, their studies, often based on hypothesis on the current socio-economic conditions, represented the base for the introduction of corrective public and international economic policies, supported by well-known International Organizations (IMF; WB; EC, EBRD). More or less successful macro and microeconomic theories were adapted from developing countries (Easterly, 2002) to meet the policy needs in transition countries. By the way, low consideration was devoted to the fact that countries classified as "in transition" differed from other countries with a similar per capita income, as they usually presented a larger share of their workforce in heavy industry, a system of extensive infrastructure, mostly skilled and alphabetized population (Gros et al., 2004).
Later on, a distinction emerged also within transition countries, mainly on the base of the "software" required by the market economy. In fact, some CEEc introduced fast and quite successful reforming policies which resulted in the EU membership in 2004 and 2007. At the opposite, the former Soviet Union[1] and South-eastern European countries (SEE)[2] adopted a slower and uncertain reform path, and are still lagging behind.

[1] The Former Soviet Union is composed by the 15 independent states that seceded from the Union of Soviet Socialist Republics in its dissolution in December 1991: Armenia; Azerbaijan; Belarus; Estonia; Georgia; Kazakhstan; Kyrgyzstan; Latvia; Lithuania; Moldova; Russia; Tajikistan; Turkmenistan; Ukraine; Uzbekistan. In this work the FSU excludes the Baltic States (Estonia, Latvia and Lithuania), included instead in the EU new Member States since they joined the EU in 2004.
[2] They includes the Western Balkans (Albania and the former Yugoslavia, excluding Slovenia), plus Romania and Bulgaria. These two countries joined the EU in 2007, thus they are considered in the NMS.

The beginning of the transition process raised the issue of the optimal speed of transition – i.e. the speed of the reforms to be introduced, but fewer words were spent about their quality. Two alternative approaches emerged: *big bang* versus *gradualism* (Sachs et al., 1994; Roland, 2000). The reform path should have been not too slow in order to free resources for the growth of the private sector, to arrange wages claims on unemployment, to stimulate investment through increased productivity, but neither too fast, because of the risk of social unrest and political backlashes of reformers (Rodrik, 1995). The unemployment level, which was widely underestimated at the beginning of the transition process, became the indicator of the speed of transition (McAuley, 1991; Macours et al., 2000; Boeri, 2000). As a difference from the agricultural and rural areas, where open unemployment turned into under-employment in the primary sector, preventing from restructuring and the reach of labour productivity gains. In fact, if the growth of unemployment level mirrors the speed of transition, the change in agricultural productivity can be considered as an indicator of the "quality" of transition.

Studies on agricultural transition were provided only later on, and they highlighted the important contribution of agricultural and rural areas, and their peculiar reforming policies, in shaping the path for change (Swinnen et al., 2006). Instead, as evidenced by the classic economic theory (Lewis, 1954; Kutznet, 1963; Rostow, 1960) the reform of the agricultural sector plays a main role for economic development, starting with land division and the introduction of key property rights. The failure to address the importance of agricultural reforms (which were often moved by political aims) by the governments in transition countries first and the EU institutions later, contributed to slower the development path, enhancing the structural bottlenecks which still characterize agricultural and rural areas in the CEEc, in the FSU and in the Western Balkans (WBs).

Nowadays, in a fast moving world economy, post-transition economies tried to find out their place, surviving economic and financial crisis (1998, 2008) and change in the European and international scenario. In the last decade, ten countries from Central and Southern Eastern Europe[3], the EU new Member States (NMS), signed their "return to Europe" with different fortune. At the same time, a renewed powerful role of a mostly unequal Russia, as provider of gas and first raw materials and the difficult development conditions of FSU, characterize the Eastern borders.

A long list of studies was produced in the last years, showing a fragile convergence path of the (former) transition economies with the Western ones, a persisting structural fragility and a bump in socio-economic inequality. Something went wrong, and Boeri and Terrel provide us some insight on the reasons:

"Studying the transition means analyzing the interactions between institutions and structural change, a process we still now very little about" (Boeri et al., 2002).

[3] Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.

Something was missed, while policies were drafted according to the common law of the Washington Consensus, in a similar fashion for all the transition countries, not considered in their geographical, historical and socio-economic peculiarities. And, as results showed already after 10 years from the start of the transition process, the "block" of the former Communist countries turned out to be not homogeneous at all, and the policies enacted didn't conduced to the expected results. This outcome was influenced by the limited knowledge we had of those countries after the fall of the Berlin Wall, and the difficulties to understand how the previous system worked. Reforming policy making proceeded faster than the institutional and political rebuilding: was the time right? The current socio-economic and financial reality of the FSU and the CEEc would let us answer "no". And the consequence followed.

Although the reforms introduced in transition countries were accompanied by considerable flows of public and private investments, which culminated in the EU structural, cohesion and CAP funds for the NMS, inequality spread within the countries, determining winners and losers from transition (Iara et al., 2003; Csáki et al., 2010; Lackenbauer, 2004; Nickel, 2005; Monasterolo, 2008).

Neither the accession in the EU was able to reverse the partial results of the past transition policies, and to open the way for a balanced growth path based on targeted policies. In fact, the last economic and financial crisis, with speculations attacking the Hungarian forint at first, showed the fragility of CEEc economies, and the low effectiveness of external (i.e. IMF) and internal (ECB) support.

Thus, the objective of the following pages is to shed some light on the connection between the open issues emerged in the transition process and not addressed by the policies introduced, either promoted by external experts or by national governments, and the current development bottlenecks which affect CEEc. In particular, I will focus on agriculture and rural development, highlighting their contribution to the transformation process and their current importance, reassessed at the time of the EU enlargement negotiates by the animated discussions on the CAP introduction and the related budget redistribution issues). Moreover, the agricultural and rural areas are on the international policy agenda due to their contribution to the current trans-national challenges (climate change, production and consumption sustainability, trade distortion, poverty alleviation and inequality).

Numerous studies about transition in agriculture evidenced the importance of the sector, which often still represents the main income and occupation source in lagging behind rural areas, and where food still constitutes the main voice of households' income spending. Agriculture represent a main issue both in the ongoing WTO negotiates, and inside the EU, which has just launched the new regulation for the CAP after 2013 (EC, 2011). While the functioning of the agro-food (formal and informal) system is still very cloudy in CSI, a deeper knowledge of the agricultural economy in the CEEc in the transition period is available. In the NMS, also thanks to the EU membership requirements, comparable statistical information on the state of agriculture and socio-economic and demographic development and living conditions in rural areas are

provided. By the way, several statistical limitations persist, especially when working with data at disaggregated sub-regional level (i.e. NUTS 3), which represents serious limits for in depth statistical and econometric analysis, as showed later on in this work.

"Knowledge evolves by comparing actual with expected outcomes and learning from these deviations. It is easy to be wise after the events. It is more difficult to understand why wrong predictions were made at the outset" (Boeri, 2011).

The citation above introduces another big issue addressed in the next pages: the role of monitoring and evaluation, here applied to the policies for agricultural and rural areas in the enlarged EU. The last years have seen several methodological and conceptual improvements in the EU policy evaluation approach, for its contribution to understanding why what we expected didn't realize, and what lesson can we learn from the past experience. Analysing the impact of economic phenomena requires a bunch of collected data to be updated, accountable, comparable and available at the need. The provision of preliminary "lessons learnt", and the identification of "best practices" from the previous transition and enlargement experience of the EU NMS could provide useful insights for the introduction of corrective measures in periods of crisis. Moreover, they can avoid repeating the same errors in the future, while the EU has kept its doors open for the Western Balkans (WBs).
Although it is difficult - due to the structural break in the system change, and the limited time series available – provide quantitative evaluations of the policies enacted in transition, and tell out the impact of the wrong initial predictions determinant of the success of transition, and policies enacted, it should be much easier to assess the impact of the EU membership for the NMS. Instead, quite a decade after the completion of the *Acquis Communitaire*, the evaluation of the introduction of agricultural and rural development policy reforms in these countries is not uneven, nor in the method to use (whose pros. and cons. will be explained later), neither in the outcomes. Among the few certainties showed by the numbers, there is the spread of income (and development) inequality both within the NMS and at the sub-regional level, and between the NMS and the EU-15, both in expansive (1997-2006) and recession periods (after 2008). Inequality grew at a slower pace, and a tendency towards convergence with the EU average emerged in the pre-accession years (1998-2003), also thanks to the limited initial dimensions of these economies. Instead, after the EU membership the convergence path slowed down, and the NMS regions started to display divergence, mainly driven by the lower performance of agricultural and rural areas, which still suffered from structural problems unsolved in transition. This provides a first evidence of the limited effect of the EU Cohesion policy and CAP introduction in the NMS, and due to the lack of targeting policies for the most in need areas, the limited institutional abilities in dealing with project and funds management, and the low financial endowments which were not able to reach a critical level.

Hungary has been chosen as a case study from the CEEc due to its development path: in fact, it was considered by the main international financial institutions (the World Bank *in primis*) in the late 1990s one of the best transition performers, and it was among the first six countries to start the accession negotiates with the EU. By the way, Hungary was also among the first countries to be seriously hit by the last financial crisis, and it still under the tight control of the IMF. Moreover, the country is atypical because, at the time of the system change, already presented a kind of "stop-and-go" limited reform process since 1968 (after the "Prague spring"), while the other countries had to start from the basics. Thus, an in depth case study analysis is provided, enriched by the experiences gathered in the region by the author.

Several topics are addressed: the analysis of the initial socio-economic scenario, the characteristics of the reform path, the reforming policies introduced and the role of the EU enlargement in meeting the remaining development goals, the current challenges. Then, through qualitative and quantitative methodologies, these latter belonging to multivariate statistics, spatial econometrics and non-parametric methodologies, an analysis of the evolution of Hungarian agriculture and rural areas, identified through an improved classification method, and the impact of the EU support on the characteristics of rural areas is provided.

Chapter 1 begins with an analysis of the basic facts and results of transition economics: the main approaches to policy reforms are introduced and explained, and the macroeconomic results are analyzed in a comparative perspective between the CEEc and the FSU. Then, a focus on agricultural economics follows: the structural changes occurred in the transition process in agriculture and the differences in regional performances are discussed. A particular attention is paid to the difficulties to compare the statistical accounts calculated before the system change with those provided in the transition period, due to their construction differences, and the need for data reconciliation.

Moving from the results obtained by previous analysis on convergence in the enlarged Europe, mainly conduced with the most used but severely limited parametric methods (β and σ convergence) at the national or regional level, in chapter 2 the first attempt to assess convergence in p.c. GDP PPS between the NMS and within the Hungarian counties (NUTS 3 level) is provided. The choice to use the most disaggregated level of data for which a time series of at least ten years was available, NUTS 3, is important because it finally allows to compare the distribution of the development path of the sub-regional units, from the signature of the EU pre-accession agreement until 2008, four years after the EU accession. In fact, applying the Quah's non-parametric approach of convergence based on the stochastic kernel, it is possible to evidence the evolution of the growth distribution followed by the statistical units, and map them graphically. A specification of the same methodological approach allows us to analyse the conditioning role of a variable on the evolution of the distribution of the p.c. GDP PPS, and on the convergence path. Accordingly, the first non parametric analysis of p.c. income convergence conditioned to the CAP direct payments for the first years available (2004-

2008) is provided for the Hungarian counties (NUTS 3 level), in order to assess whether the CAP funds conditioned the convergence of Hungarian rural and urban areas. The results are commented also looking at the correlation analysis on the characteristics of the successful SAPS applications and their beneficiaries. Being agricultural labour productivity addressed as a main indicator for the sector performance in the CEEc, and an important objective and the main voice of expenditures for the CAP, an analysis of its evolution in the Hungarian counties since 2000 is provided. Due to the lack of time series for the variables which compose a suitable indicator for agricultural labour productivity, a sigma convergence method is applied.

Chapter 3 provides an overview on the main issues which characterized the important CAP reforms occurred since 1992 and the new regulations launched in October, 2011 for the next programming period 2014-2020. The main positions behind the need for such a CAP support and structure are discussed, with a particular attention to three pressing problems: the persisting inappropriate calculation of farmers' income, the need for the identification of rural poverty and policy targeting, the dimensions of inequality in the distribution of the CAP payments.

Chapters 4 and 5 provide evidence of the situation of the Hungarian agricultural and rural areas. In Chapter 4, an overview on the changes which interested the Hungarian agricultural sector in the long EU way is provided, and the problems unsolved in the transition process are highlighted. The challenges represented by the CAP introduction in the country are explained, together with the rationale and the characteristics of the EU measures and instruments for agricultural and rural areas in the NMS.

Chapter 5 analyzes the changes occurred in the Hungarian rural areas during the EU membership, drafting a preliminary evaluation. In order to do so, the evolution occurred in the concept of rural areas is explained, and the main issues linked to rural development statistics for policy monitoring and evaluation are highlighted. Then, after an overview on the most used methodologies to classify rural areas, a new mixed (quali-quantitative) methodological approach, based on a multidimensional dataset of timely updated official variables and indicators, is introduced and applied to the analysis of the Hungarian counties, before (2003) and after (2007) the EU membership. The analysis is conduced through an explorative application of multivariate statistics methods and backward econometric models.

The conclusions draws some lessons learnt from the Hungarian accession experience of agricultural and rural areas, for improving the quality of the current EU evaluation framework for agricultural and rural development policy, and for the preparation of the future EU enlargement to the WBs (starting with Croatia, which will join the EU in 2013). The focus is set on the importance of tailoring statistical information and targeting policies to the area specificities, in order to prevent the insurgence of backlashes from development. This point comes together with the need for more transparency within the CAP at all the policy stages (from decision making to data collection and policy evaluation), which could represent a real turning point for drafting a CAP reform finally aimed at the sustainable development of agricultural and rural

areas, based on a proper theoretical framework and policy evaluation instruments. Under this perspective, a serious obstacle for assessing the CAP impact on agricultural and rural areas is caused by the persisting lack of disaggregated data available from the national paying agencies at the regional and sub-regional level, on farms performances and on agricultural households' incomes.

As final remarks, some considerations on the current pressing challenges which interest agricultural and rural areas – sustainability in food production and public goods preservation against climate change, the redefinition of the peri-urban and rural geography, the increasing citizens' demand for public goods preservation and the new producers-consumers partnership in the short food chain– area provided.

This work, in the shape and content presented here, draw on the experience gathered by the author in several CEEc and The WBs (Estonia, Hungary, Romania and Serbia among the others). Therefore, it would not have been possible without the useful comments and suggestions received from academics, researchers and friends such as Prof. Natalija Bogdanov, Prof. Csaba Csáki, Dr. Tamás Mizik, Dr. Attila Jambor, Prof. Giovanni Anania, and the European Rural Development Network (ERDN) group. A couple of people deserve mention in particular: Prof. Roberto Fanfani, Prof. Mario Mazzocchi and Prof. Cristina Brasili. I would also like to thank Francesco Pagliacci and Federica Benni for their advices and fruitful collaborations.

I am particularly grateful to Claudio and Domenico, and to my friends Eleonora, Manuela, Simona, Peter, Alberto, Stefano, which shared with me important steps in the development of this project, always supporting me.

I alone am responsible for the results and views expressed here.

Bologna, April 15th, 2012.

LIST OF ABBREVIATIONS

ALP: Agricultural Labour Productivity
AWU: Annual Working Unit
CAP: Common Agricultural Policy
CEEc: Central and Eastern European countries
CIS: Common Independent States
CMEF: Common Monitoring Evaluation Framework
CMO: Common Market Organization
COMECON: Council for Mutual Economic Assistance
CSF: Common Strategic Framework
DG Agri: Director-General for Agriculture and Rural Development
EAFRD: European Agricultural Fund for Rural Development
EBRD: European Bank for Reconstruction and Development
ECB: European Central Bank
ERDN: European Rural Development Network
ESF: European Social Fund
EU: European Union
FAO: Food and Agricultural Organization
FSU: Former Soviet Union
GAO: Gross Agricultural Output
GDP: Gross Domestic Product
HCSO: Hungarian Central Statistical Office
ILO: international Labour Organization
IMF: International Monetary Found
MPS: Material Production System
NMS: New Member States
OST: Optimal Speed of Transition
RD: Rural Development
RDP: Rural Development Policy
RDPs: Rural Development Programs
SAPS: Single Area Payment Scheme
SEE: South and Eastern Europe
SFP: Single Farm Payment
SMEs: Small and Medium Enterprises
SNA: System of National Accounts
SOEs: State Owned Enterprises
TFP: Total Factor Productivity
UN: United Nations
WB: World Bank
WBs: Western Balkans

CHAPTER 1

UNDERSTANDING THE NEED FOR POLICY REFORMS IN TRANSITION COUNTRIES: CLASSICAL GROWTH MODELS VERSUS THE TRANSITION EXPERIENCE

1.1 The political economy of transition: out from the neoclassic model

> The rise and fall of centrally planned economies probably constitute not only one of the greatest events of the XXth century but also one of the most important failed experiments in human history
> Roland, 2000.

The 20th century was characterized by the dichotomy between two main models of development: the capitalist one, based on market economy and its connected institutions, and the socialist one, organized around the role and powers of the Party and the Central Planner, and the state ownership of production structures. Their application, in the respective countries of influence, determined the development of specific socio-economic and political features. After the fall of the Berlin Wall, which represented the collapse of the socialist alternative, a process of transition from a planned to a market economy started in the countries previously under the control of U.R.S.S, as well as in the ex-Yugoslavia and in Albania. Instead, in China the Communist Party started reforming the economy already since 1978, with the decollectivization of agriculture, the introduction of the Households Responsibility System and the price reform, while leaving the role of the political institutions unchanged (Swinnen et al., 2006).
During the 1990s, the transition process was mainly considered as a matter of economics (Kornai, 2008). Other issues, such as democratization and the need for a new institutional setting, where advocated but quite marginalized in terms of analytical strengths devoted to them. Just after the negative results obtained at the end of the 1990s (as the financial crisis which affected Russia, the FSU and CEEc in 1998), the importance of institutional transformation was asserted. Western analysts often forgot, because they were used to it, that the democratic and market institutions were absent in transition countries. The FSU and the CEEc had to reintroduce or, in some cases, to set up from the beginning, the institutions of democracy and governance (new executive, legislative and judiciary branches of government), freedom of speech and its instruments (press, TV, radio, religion, civil society), new social norms and values, and the openness to private entrepreneurship. In a few words, a new social contract between a young State and the citizens. The state was in charge of promoting the creation of high quality institutions to support the introduction of a competitive institutional framework, which would have allowed a well functioning and inclusive market economy (Nickel, 2005). In fact, in absence of adequate institutions incentives would not work, or even generate perverse effects (Rodrik, 2000). Moreover, the process of transition highlighted the importance of a dynamic adaptation of capitalism institutions, and their

complementarities in creating and supporting the momentum for reforms. Instead, the main initial stated objective was the introduction of market economy, in order to bring transition countries to levels of prosperity comparable with the Western ones. The policies and interventions proposed, rooted on neo-classical theoretical foundation, aimed at prompting the "catching up" of the former planned economies, in a similar fashion to the development programs proposed by the First World aid donors for low income countries (Easterly, 2002). A specific set of ten economic policy prescriptions to constitute a "standard" reform package for transition countries (Table 1.1.1) where already in the first two years of transition, reforms implementation prevails over their preparation.

Table 1.1.1: Washington Consensus: reform policies

Policy type	**1-2 years**	**2-5 years**	**5+ years**
Macroeconomic stabilization	implementation	continuation	continuation
Price and market reform	implementation	continuation	continuation
Trade liberalization	implementation	continuation	continuation
Labour market reform	preparation	implementation	continuation
Financial reform	preparation	implementation	continuation
Small privatization	implementation	implementation	continuation
Private sector development	implementation	implementation	continuation
Large privatization	preparation	implementation	continuation
Legal (tax, property rights)	implementation	continuation	continuation
Institutional reforms	implementation	implementation	implementation
Unemployment insurance	implementation	continuation	continuation

Source: adapted from Fischer et al., 1991

The task was hard, due to the number of people interested (quite 900 millions, that becomes 1.7 billions if we include China, accounting for the estimate errors which affect the Chinese data, Swinnen et al., 2006) and the low knowledge that analysts and experts had, at that time, of the economies in transition. In fact, official statistics were difficult to be gathered and compared, due to the closeness of the former Communist economies, and the different accounting system used for the main indicators (i.e. NMP instead of GDP). Nevertheless, at the turn of transition, the question for Western experts was not whether to embrace the market economy, but how to reach it. As Blanchard, Froot and Sachs (1994) explicit, "arguments ranged from the timing of stabilization, the speed of price liberalization, the design of privatization".

How the radical transformation should look like? What to design and how to implement it, in a panorama characterized by strong faith in the change and much uncertainty?

In order to answer these questions, an extensive literature was produced about the characteristics of transition, accompanied by a kit of "ad hoc" models to explain the

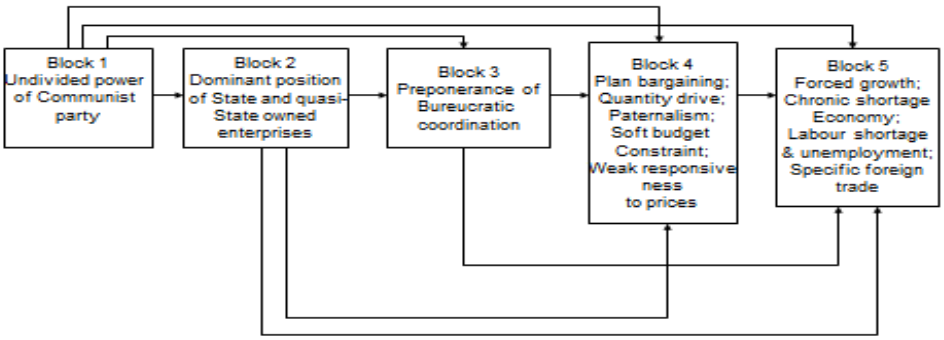
movement of the main structural variables (GDP, unemployment, wages,...) and consumers' behaviour in transition.

Box 1: How the socialist system looked like

One of the main economists and intellectuals which widely described how the socialist system was organized is Janos Kornai. In the figure below, he describes the main line of causality in a positive rather than normative way. It includes some of the most important phenomena, and it has to be read from the left to the right. According to Kornai, the key of system understanding lies in the political structure. In fact, the turning point is represented by the undivided political power of the Communist party (where the presence of opposition parties was just a pro-forma): it is the Party's ideology that determines and imposes the property form, which contributes to the spread of bureaucracy, and to the formation of a certain citizens' behaviour. A good example is represented by the role played by the Chinese Party, even in the transition process.
All the blocks are directly or indirectly linked, because the different phenomena they represent are all mutually influenced. Thus, components of block 4 (plan bargaining, soft budget constraints), which represent actors' motivations, are not only explained by the preponderance of bureaucratic coordination (block 3), but also by the dominance of state ownership and by the official ideology. The main ideology and the dominance of state ownership could not be enforced without a pervasive bureaucratic coordination mechanism, which constitutes the hearth of the preservation of the system (even if it varied from country to country).

Figure 1.1.1 Explaining the Socialist structure

The main line of causality (adaptation from Kornai, 2008)



Accordingly, the three necessary and sufficient conditions (to be present at the same time) identified by Kornai for assessing that a country embraced a socialist system, are:
- the political monopoly of the ideology of the Marxist-Leninist Communist party, which shapes the introduction of the following two ones;

- the dominant role of public ownership (with just few and marginal forms of private ownerships allowed, i.e. in agriculture);
- the presence of a pervasive centrally directed bureaucratic coordination system.

From these three features, other secondary traits can develop, which vary according to country specific implementation of the official ideology.

Count Sergei Witte, a prominent reformer under the Czars, used to say that there were two essential elements for radical reforms in Russia: absolute monarchy, because you need not pay attention to your critics if His Majesty supported you, and speed, because somebody might persuade the Czar to change his mind before the reform could be made irreversible.

The most of the models proposed in the 1990s explains the process of change looking at the "optimal speed of transition", from here OST (WB, 1997). In fact, political economy arguments, such as privatization of state owned enterprises, the macroeconomic stabilization and trade opening, were at the centre of discussions about the speed and sequencing of reforms. Two main approaches emerged: big bang versus gradualism (Sachs et al., 1994; Roland, 2000; Svejnar, 1989). Supporters of the former one defined the process as a "window of opportunity", thus advocating governments to fast adopt and implement reforms (Lipton and Sachs, 1990; Balcerowicz, 1995; Blanchard, 1997). The "period of exceptional policy" introduced by the change towards democracy was to exploit in order to create irreversibility for these reforms (Boycko, Shleifer and Vishny, 1996; Roland, 2000). Przeworski (1991; 1995), in praise of a fast transition, evidenced the possible insurgence of citizens' tiredness of reforms:

"While a gradualist approach may cause lesser social tensions, a long period of moderate reforms entails the danger that both reformers and the population will 'become tired of reforms' as they do not seem to bring visible changes… and various anti-reform and other lobbies may mobilize their forces and may gradually strangle the reform process".

The speed was the essence, while the quality and coherence of reforms came behind. At the opposite, supporters of the gradualist approach highlighted the importance of planning reforms following a precise sequencing, because proper initial reforms could pave the way for a successful development path (Dewatripont et al., 1992). Some examples can be found in the Chinese case study: in fact, the Chinese decollectivization in 1978 resulted the biggest poverty reduction program ever introduced (Rozelle, 1996).

There is an extensive political economy literature it is the idea that a deep crisis is the propeller of reforms (Rodrik, 1996), because in this case the government is not keen to interest groups anymore, if it wants to survive. Some analysts see in the deterioration of economic conditions the chance for a political change, in order to reach better economic performance (Krueger, 1993). By the way, the introduction of reforms despite interest groups, rather than because of them, points out the problem of their short term costs.

When are reforms sustainable? Rodrik asserts that reforms are sustainable when they generate winners, which are interested in continuing them. At the same time, reforms imply a J-curve (Piñera, 1994), because the effect of economic reform on growth is negative in the short run, thus creating a key political problem of how to support reform programs (Bresser Pereira et al., 1993). The counterfactual of "no reforms" performs even worse, while data shows that in the long run reform policies start to work. The experience of the CEEc compared to the FSU confirms it: reforming countries, such as the Visegrad group (Czech Republic, Hungary, Poland, and Slovakia), experienced short term costs (and the rise of internal opposition) but the reforms enhanced reduced them, as a difference with the slower/no reforming FSU (Table 1.1.2).
Reforms have distributional effects, with the emergence of winners and losers, and in transition countries this truth was accompanied by the spread of interregional income and living conditions inequality (Heidenreich et al., 2008). A reforming government is the key: foreign aids can support governments to survive in the short term, but a change in policy must be introduced in order to allow aids to help (Sachs, in Williamson, 1994).

Table 1.1.2: Reform in selected economies in transition

Country	Average annual real GDP change in the first 3 years of transition	Annual inflation in 1994 (%)
	Strong reformers	
Poland	-5.5	30
Czech Republic	-8.2	9
Hungary	-6.2	19
Estonia	-10.1	47
	Weak reformers	
Russia	-14.7	336
Ukraine	-14.4	1000
Moldova	-17.8	245

Sources: own elaborations on Rodrik (2006) and IMF (1994)
First year of reforms: 1990 for Poland and Hungary, 1991 for others (figures for Czech Republic refers to 1991 and 1992)

According to Blanchard (1997), a too fast or too slow process of restructuring (and workers reallocation) in the public sector could prevent from reaching good final results: if state owned enterprises (SOEs) close down too fast, then new private firms find it hard to emerge, because of the fiscal cost of unemployment (i.e. the unemployment benefits) they have to afford. Instead, if the process of privatization moves too slowly, it decreases the incentives for private activities to enter the market. In this case, no critical mass of unemployment is created (with the negative impact on wages and labour productivity), and no benefits are introduced for the reforming process. Thus, the restructuring of SOEs became the key of the OST, and transition was meant as reallocation of workers from the public to the private sector.
Some variables, such as unemployment, output (fall), labour reallocation, and investments, became the control variables of the process of restructuring of SOEs and for the creation of new firms. Measures were proposed for governments in transition countries to affect the pace of closing down of SOEs, by cutting down direct and

indirect subsidies. Unemployment was expected to emerge, as a result of labour reallocation from the declining public to the rising private sector, and new provisions would have allowed voluntary quit and pre-pensioning. In the reality, different paths of restructuring were followed by the CEEc and the FSU, according to the speed of the reforms enacted, the relevance of the by-side policy instances and the political trade-off emerged in introducing reforms.

Several models tried to define the optimal transition path and its determinants, moving away from the neoclassical growth models, opting for a partial equilibrium approach (Aghion et al., 1994, Blanchard, 1997), with some relevant exceptions (i.e. the general equilibrium model by Castanheira and Roland, 1998). They originated numerous structural assumptions, from which it is hard to define the role of single market imperfections, or the contribution of single factors.

By the way, when planning transition interventions, experts often looked at the experiences of the pro-market policies introduced in developing countries since the 1950s. Neoclassical political economy arguments, referring to the so-called Washington Consensus, were used to support policy introduction and explain the different economic performance across transition countries (Roland, 2000), namely between the CEEc and the FSU.

Three main steps shaped the process of economic transition (Blanchard, 1997):

1. Price liberalization: prices for consumers and producers goods which were formerly fixed by the state via the central authority, start to follow the market (demand-supply principles), in order to guarantee market equilibrium.
2. Institutional reforms: the existing institutions are reformed (privatizing state enterprises, reorganizing the State administration, new tax system) and new institutions introduced (stock exchanges, investment and pension funds, unemployment offices).
3. Macroeconomic control: market institutions need to be introduced in order to control public economy, to limit public deficit and fast rising inflation. Main interventions relate to the introduction of hard budget constraints for the remaining public companies, the increase in direct and indirect taxation (and the introduction of a fiscal authority), cuts in public spending and the increase in interest rates.

Price liberalization was inevitable, because in a market economy the information about the optimal allocation of resources, according to consumers and producers' marginal utility and costs, is showed by prices. At this regard, Hayek (1945) pointed out the informational limitations which characterize the plan: in fact, in the former planned economies the Central Planner was in charge of setting the prices, which were often established arbitrarily, distorting the economy. As a difference from the market economy, the objectives of the Party were far away from the "social optimum", and from the maximization of consumers and producers utilities.

The following equation

Total income = (consumers' willingness to pay – price paid by consumers) + (price received by producers – producers' costs)

was widely unattended, and the plan didn't maximize the total economic income (in GDP). Then, the planned system was characterized by several negative externalities, such as corruption, bureaucratization, and several distortions on production (as the soft budget constraints, labour hoarding) which induced the presence of perverse incentives for the economic agents. And incentives mattered, as demonstrated by the faster recovery and better current performance of the CEEc, which were offered the perspective to join the EU, as a difference with the FSU. Here, after price liberalization, the expected growth results from privatization didn't occur, because the incentives of privatized enterprises to produce were still far from profit maximization, being accustomed to the old soft budget constraint scheme. Thus, profit becomes the variable to maximize, according to the market requests (demand/supply equilibrium).
Among the institutional reforms, privatization of the former SOEs and activities played a main role in setting the basis for future productivity and growth, and in generating revenues for the State. Privatization in the FSU and in the CEEc wasn't only about selling State production assets to private investors, which are allowed to enter the market after the previous liberalization. It also consisted of the conversion of an entire production and workers' attitude system. In fact, under the plan the SOEs had different objectives than the Western ones: they were politicized and they aimed at maintaining high employment while keeping prices below the average cost. As a difference from Western economies, where state ownership occurs mainly because of market failures (i.e. natural monopoly), in transition economies the market structures are highly imperfect because of the large firm bias of the Central Planner. Moreover, the soft budget constraint created disincentives to the SOE workers and managers (perks, job security, and managerial power). In this scenario, rapid privatization was important in order to prevent the insurgence of asset stripping (via legal and illegal means) from the former SOEs workers and management, and make reform irreversible through the creation of a group of winners (Balcerowitz, 1994).

In the FSU and in the CEEc, three main privatization methods were adopted:

- auctions, which often favoured foreigners due to the small domestic saving stock (in comparison with the huge stock of state owned capital assets). A good example is Hungary, where foreign investors could acquire large shares of capital assets;
- restitution of the pre-communist private capital (it doesn't apply to the assets generated under Communism), which mainly occurred in the CEEc. In some cases (i.e. agricultural privatization in Hungary) it didn't contribute to reach productivity results nor to create clear property rights;

- mass privatization through vouchers, which allows the people to buy state assets.

This last solution was often preferred because of its speed, and for an equity reason, in order to avoid the concentration of gains in few winners (i.e. the nomenclature) during the fast privatization, giving purchase power to the population, and guaranteeing a second trade by investment funds. By the way, mass privatization through vouchers presented several problems linked to the eligibility (who should get the vouchers), their use and their trading, and the creation of dispersed ownership. In Russia, vouchers could be exchanged directly for shares in companies; in Czech Republic, financial intermediaries controlled the majority of shares, and the delays in reforming the banking sector made such a privatization costly; in Poland vouchers were exchanged for shares in government created funds. The mechanism of trading was very different in the interested Countries: it was computerized in Czech Republic, while in Russia the company board could choose, giving financial incentives for managers-workers buyout.
Most important, mass privatization was an endogenous process, guided by workers councils in Poland, and internal managers/oligarchs in Russia, which opted for managers-employee buyouts, according to their direct interests.
Privatization in Hungary occurred mainly through assets auctioned off to foreign investors, the rest being owned by insiders, while in the former Czechoslovakia the SOEs were privatized to strategic investors (i.e. Skoda to Volkswagen). Instead, in Russia and in the most of the FSU, the assets were mainly owned by insiders (workers and managers).
As a consequence of the difficulties to liberalize prices and privatize the SOEs, also the macroeconomic system didn't stabilize. In particular, the initial surge in inflation was attributed mostly to the price adjustment occurred after the price and exchange rate liberalization, and to the weak current monetary and fiscal control. While inflation at consumer price level declined in the CEEc, it remained at high (3 digit) levels in the FSU and Russia in the first years, because the persistence of the rouble zone until the end of 1993 prevented them to pursue truly independent monetary policy (Dąbrowski, 1997). In fact, right after the system change, the most of the ex Soviet Republics (except the Baltic countries) continued to use the rouble as common currency, without referring to a common Central Bank anymore. Moreover, the weak institutional environment didn't help in the fight against inflation but it created a temptation to moral hazard behaviours, i.e. conducting expansionary monetary policies (Dąbrowski, 1999), and retarding the introduction of proper fiscal policies, preventing from the decrease in public debt. In 1992, the median inflation rate was nearly 100 percent in the CEEc, and well over 1 000 percent and rising in the Baltic countries, Russia, and other countries of the FSU (IMF, 1994). After the end of the rouble, inflation slightly declined in Russia, but it jumped again during the financial crisis in 1998 and 1999 (Table 1.1.3).

Table 1.1.3: Consumers price level in Russia, 1993=100

Year	Inflation level
1993	100
1994	974.62
1995	3 970.41
1996	1 1808.39
1997	1 7425.64
1998	1 9973.27

Source: IMF

1.2 Beyond the numbers of economic transition

After the beginning of the transition process, output fell everywhere in the interested countries, but at a different pace. The CEEc experienced a U-shape pattern of GDP and employment, and high employment to output elasticity: GDP fell sharply and recovered consistently during the 1990s, and the pre-transition level was reached just at the end of that decade. Instead, employment experienced a more gradual fall and recovery path. Consequently, labour productivity recorded a lower decline, and recovered fast. Instead, the FSU showed a L-shape pattern of GDP and employment, with a low responsiveness of employment to output: GDP declined sharply and then remained lagging behind, while employment declined much slowly, determining a huge decrease in labour productivity and real wages, low unemployment and low labour reallocation.

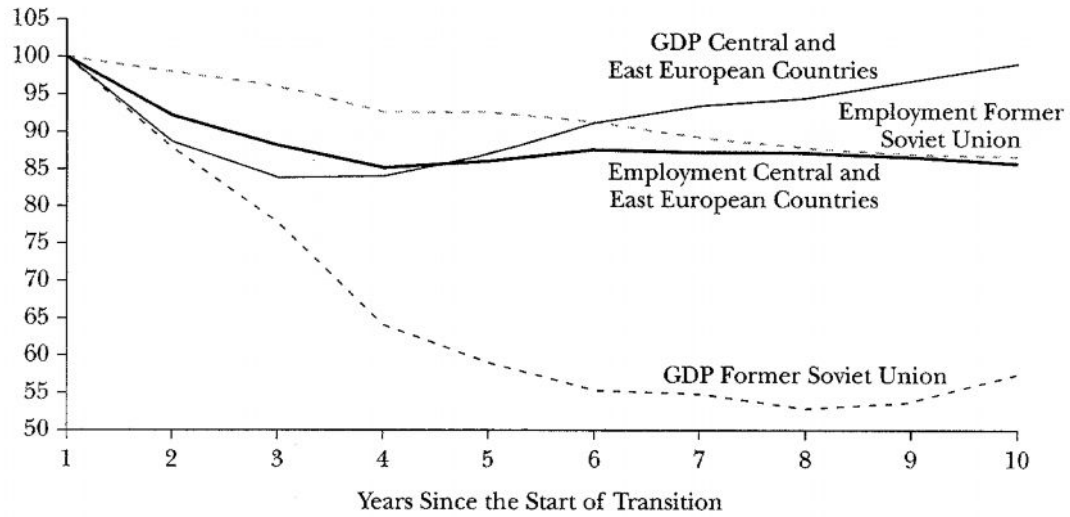
We must keep in mind that the lack of proper statistical information on the pre-reforms period could determine the over or underestimation of the GDP and employment fall (i.e. for unemployment rates in Ukraine, where no surveys were available)[4].

The different GDP-employment pattern followed by the two groups of countries is showed by Figure 1.2.1 For the CEEc, employment followed the fall-and-recovery pattern of GDP (both reach 85% of their pre-transition value), while in the FSU employment declined slowly, and GDP collapsed (50% of the original value). In fact, the total employment-to-output elasticity was estimated to range between 0.2 and 0.8 in the first years of reforms in the CEEc (Svejnar, 1999), but it is insignificant in the FSU. It is interesting to note that, in the CEEc, only GDP returns to the pre-transition level after 10 years of transition, while the other indicators lie well behind. Finally, the figure also shows the pattern of labour productivity, which grows during the years, as GDP growth is much higher than the employment one, especially in the CEEc.

Employment was mainly concentrated in state large heavy industries, while cooperatives dominated in agriculture (private small size initiative was tolerated for agricultural production directed to self-consumption, as a difference with the ex-Yugoslavia, where small plots of was distributed to private households by the State). A centre-periphery development model prevailed during the former Communist period, thus employment mainly concentrated in large urban agglomerates.

[4] Few methodological contributions are provided on data reconciliation between the former planned economic system and the transition periods, and it' hard to deal with comparisons.

Figure 1.2.1: Employment and output adjustment in East European Countries (CEEc) and Former Soviet Union (FSU)



Note: Year of start of transition = 100. Start of transition: 1991 = 100 for FSU; 1989 = 100 for Poland; 1990 = 100 for all CEEc. GDP in 1995 U.S. dollars. Average employment in a year.
Source: EBRD, Transition Report (1995); Boeri et al., 2002.

The differences between the U-shaped and L-shaped path in the CEEc and in the FSU can be explained by several factors, connected to the magnitude and characteristics of important variables (e.g. hidden unemployment, informal economy), the different reforming strategies, the real wages adjustments in a period characterized by high inflation rates (or hyperinflation), and the effects of the institutional determinants in transition.

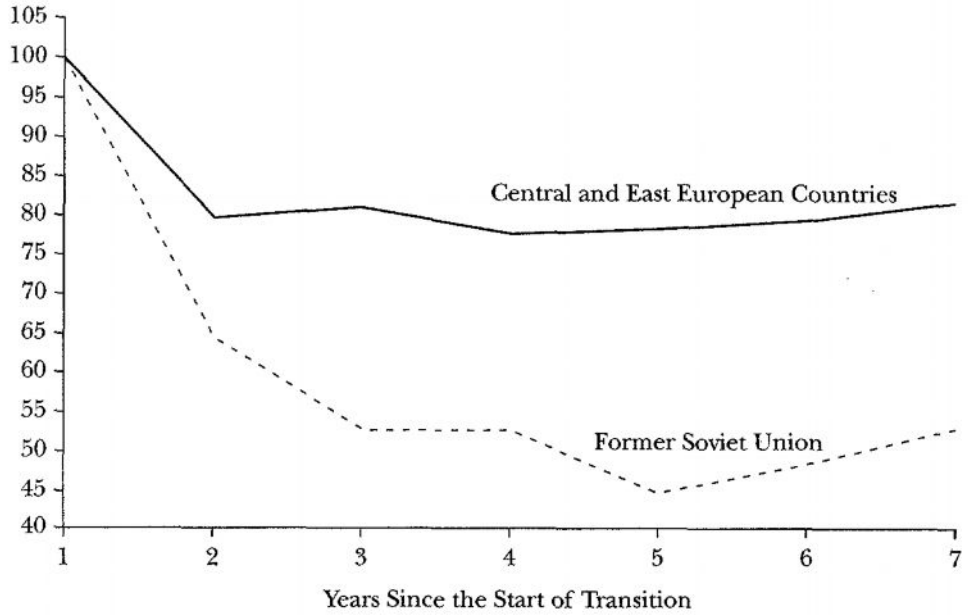
Labour market adjustment played a role in transition, especially with regard to job creation and job destruction in transition. The way the process of churning (i.e. the workers which reallocated from the declining sector to the rising ones) was enforced in the CEEc and in the FSU had an important effect on the labour market adjustments. In the CEEc, labour shedding from the public sector was consistent and caused increases in labour productivity and wages recovery, thanks to the labour force which reallocated in the private sector. Instead, in the FSU reforms lagged behind, and the labour market was more "flexible", allowing wages to fall down quickly. In the FSU, only an exiguous share of the labour force reallocated, mainly young and well skilled people, while the most of workers opted for keeping their job in the former SOEs, accepting lower wages. Then, privatization often resulted in inside-privatization, benefiting ex-managers and workers of state enterprises. Several reasons contributed to the choice to remain in the former position. Workers had to face the general fall in living standard conditions and the spread uncertainty about the future; the fear to loose the welfare provisions (sanitation, pensions) which the SOEs offered in place of the state; the differences in regional wages (higher in metropolitan areas than in the countryside). Then, political pressures (Shleifer et al., 1994), the paternalistic behaviour of the management (Autkutsionek et al., 1996), the high costs of lay-off (Garibaldi et al., 1998), and the

attacks to firms reputation in case of lay-offs (Linz et al., 1998) contributed to maintain the employment level (and labour hoarding) high in the FSU.
Although it was difficult, due to the lack of continuous data for the transition period, and the heterogeneity of experiences in the CEEc and in the FSU, to define a model of job creation (JC) and job destruction (JD), Lehman et al. defined the following:

Et-Et-1 = firms entering the market + expanding firms (hiring workers) - exit firms (closing down, bankrupt) - contracting firms (firing workers).

It emerged that reallocation occurred inside the same sectors (job to job reallocation) but from state to private firms, thus liberating (in a "creative destruction" perspective) productive labour force and resources from the declining sector (Brown et al., 2001). Brown and Earle tests whether job reallocation is enhancing productivity, as predicted by the Schumpeterian theory, and they find strong positive association after the beginning of the reforms. Moreover, new private firms showed better employment performance than the privatized ones, with SMEs creating more jobs, unlike the situation at that time in Western countries.
The high inflation rates experienced in transition pushed down real wages in the FSU, especially between 1995 and 1998 (when wages decreased by three times): firms opposed to wages indexation, and wage arrears were widely practiced by firms experiencing liquidity problems, after the end of soft budget constraints. The role of the informal sector which was higher in economic terms in the FSU than in the CEEc (Khomenkho, 2007) also influenced that outcome.
In the CEEc, real wages fell promptly and then recovered slowly, reaching 83% of their initial level in 1998 (Figure 1.2.2). Instead, they dramatically decreased in the FSU (twice as much as in the CEEc), reaching 53% of their pre-transition value, slightly recovering from 1997. Thus, "employment" was preserved but wages collapsed, preventing restructuring.

Figure 1.2.2: Trend in real wages in the CEEc and in the FSU



Note: Start of transition = 100, adjusted by the Consumers Price Index
Start of transition: 1989 for Poland, 1990 for all the other CEEc (Bulgaria, the Czech Republic, Hungary, Poland, Slovakia, Romania), which account for 93.5% of the GDP of CEEc. 1991 = 100 for the FSU (Russia and Lithuania), accounting for the 69.5% of the total GDP of the FSU.
Source: Boeri et al., 2002

Another issue in labour market in transition countries is represented by self-employment. Its trend can be explained by push and pull factors (Davis et al., 2000). The former ones realize when an economic agent sees more income opportunities in self-employment than in firms (both public or private) because of the higher human capital and productivity. Instead, workers can be pushed in self-employment by the low level of unemployment benefits (e.g. in Estonia), which make self-employment a less unsure labour opportunity than going on the market.

By the way, both blocks of Countries experienced a pronunced increase in unemployed, which was not allowed and thus officially "unknown" in the previous system, where people were not allowed to be unemployed. In fact, the system promoted the presence of "labour hoarding" (OECD, 1996), i.e. employment kept in excess of what needed to reach a determined output. This form of hidden unemployment was estimated to range between 30 and 60 per cent of state sector employment in the early 1990s which became the alternative form of unemployment. Thus, unemployment was inevitable in transition. In fact, it was expected that hardening the budget constraints of state firms, the process of privatization and prices liberalization would determine an outflow of workers from the dying public to the growing private sector, with the exit from the public sector exceeding the entry in the private at the beginning (even if the magnitude of the process was hard to define). Due to the fact that job destruction (from state firms) would have been faster than job creation (in the private sector), the introduction of unemployment subsidies was necessary together with new employment legislation, coming at a cost, mainly for the new private firms. At this regard, Aghion et al. (1994)

analyzed the issue represented by "fiscal externality" (i.e. the fiscal burden which occurs in case of high unemployment) which could depress job creation in the young private system. Fiscal externality is important because it allows for differential taxation of public and private enterprises: higher taxation is assumed for the SOEs, while (realistic) problems of tax collection are foreseen in the private sector.
A reversed U-shaped path was expected for the unemployment trend, which should have been rising at the beginning of transition, and later on declining due to scale effects in the private sector (i.e., unemployment is just determined by mechanical factors, no economics intervenes).
It was demonstrated in the equation below (1) how overall unemployment can grow (ΔU positive) even if the jobs created by the private sector are higher than the employment shed from the public sector (Boeri, 2000).

$$\Delta U = I - O = s.E_s - g.E_p \qquad (1)$$

where s is a proportion of employment in state enterprises (*Es*), g are the new posts created by the private sector (*Ep*) per any job existing at the beginning of the period.
This theory rooted on the assumption of fixed labour supply, which implies that people can be employed (in public or private firms, *Es* or *Ep*) or unemployed (*U*), without considering the possible outflow from the labour market
Therefore, unemployment composed the core of the optimal speed of transition and it was influenced by the tightening of the budget constraints for the SOEs, by the development of the private sector, and by the government and workers' behaviour from a macro and micro perspective.
The role played by workers is explained by the micro-foundations of these models, and refers to the presence of moral hazards and to adverse selection which represent two sources of involuntary unemployment, because employers in the private sector set wages at the efficiency level. In the case of high unemployment, workers' behaviour is analyzed as a determinant of the speed of transition. In fact, if unemployment increases too much at the beginning of transition, and labour shedding to the private sector is slow, workers will start opposing reforms (Blanchard, 1997).
The dynamics of unemployment are presented in Table 1.2.1. Unemployment reached its peak sooner in the CEEc (in average after 3-4 years from the start of transition, except in Czech Republic), while it took longer in the FSU. As confirmatory of the faster reform path followed by the CEEc, the average unemployment rate is much higher in these Countries (from 13% in Poland and Slovakia to 4.7% in Czech Republic) than in the FSU, where is stands around 2.4% (except in the Russian Federation, where it stops at 7.2%). This difference can be explained by the faster reform path followed by the CEEc, which introduced market liberalization, privatization and labour market reforms at the beginning of the transition process, and the quality of reforms implemented. For example, privatization in the CEEc was characterized by the cession of former SOEs to foreign investors and by the inflow of FDI, while in the FSU insider privatization prevailed.

Table 1.2.1: Unemployment dynamics in transition

Country	Level of first peak in unempl. rate	Years from the start of transition to the peak	Mean incidence of long term unempl. (1994-1998)	Average unempl. rate (1992-1999)
CEEc				
Czech Republic	9.4	9	26.8	4.7
Hungary	13.9	2	47.6	10.9
Poland	16.4	4	39.0	13.5
Romania	9.2	3	46.6	9.6
Slovenia	15.4	3	54.1	8.9
Slovak Republic	14.6	4	49.5	13.6
FSU				
Russian Federation	13.3	7	32.0	7.2
Ukraine	4.3	8	n.a.	2.4
Belarus	3.9	5	n.a.	2.3
Kazakhstan	14	7	n.a.	2.5

Notes: the start of transition was in 1989 in Poland, in 1990 in the other CEEc, in 1991 in the FSU
Sources: column 1-3: EBRD (1998, 1999, 2000). Column 3-4: ILO statistical database.

Thus, job creation and job destruction represents a huge issue for transition. As noted by Lehmann, changing the behaviour of workers and firms is a long-term process and most of the NMS have spent at least a decade before the EU accession improving the performance of their labour markets by reforming their institutions. Moreover, the labour market reform is a fundamental step to assure a smooth transition. In fact, the reallocation of labour from declining to expanding firms and sectors contributes to higher labour productivity levels in a genuine fashion (thus not only by labour shedding, Rutkowski, 2007), and to the creation of new jobs, as in the case of the EU accession. In the former planned economies, employment was mainly concentrated in heavy industries, which were state owned. The production of services and consumers goods was neglected, because supply didn't arrange according to demand, as in a market economy, and small and private business was not allowed (except in agriculture, e.g. in Poland and Hungary). Thus, the transition process was characterized by the reformers' ability to stimulate the reallocation of labour from state-owned and heavy industries to the newly created private, small scale and consumers oriented business sector. In fact, the different reform path which characterized the CEEc and the FSU is also reflected by the change in relative importance of the main economic activities; the move from public and cooperative to private ownership after privatization; the decline in firm size. The change in employment from the agricultural to the industrial and services sector, and the increase in private small size activities is therefore regarded as an evidence of reforms in the decade 1989 -1998 in the CEEc and in the FSU (Table 1.2.2).

Table 1.2.2: Structural change in employment

Country	Across Economic Activity: 1989–1998 Change in the Employment Share (Percentage)			Ownership Changes	Small Firms	Self-Employment
	Agriculture	Industry	Services	Private Sector Employment Share (Percentage) 1997	Employment Share in Firms Fewer than 100 Employees 1996	Nonagricultural Self-Employment (Percentage of Employed) 1998
Central and Eastern European Countries	−0.04	−10.0	10.1	64.7	41.7	
Czech Republic	−6.2	−5.9	12.1	59.7	46.9	13.2
Hungary	−9.1	−6.0	15.1	80.0	40.7	13.1
Poland	0.6	−7.9	7.4	64.0	50.3	16.0
Romania	12.1	−14.2	2.1	55.0	16.0	6.4
Slovenia	3.0	−12.5	9.5	59.2	31.4	9.2
Slovak Republic	−6.0	−10.6	16.6	64.6	44.8	...
Former Soviet Union	6.9	−11.6	4.5			
Russian Fed.	0.04	−10.5	11.1	65.0	13.0	6.3
Ukraine	2.3	−12.9	10.6	52.0	...	1.4
Belarus	−2.1	−7.3	9.1	...	...	...
Kazakhstan	3.1	−12.9	10.8	...	...	...

Note: "Agriculture" (first column) includes agriculture, hunting, forestry and fishing. "Industry" (second column) includes manufacturing, mining and quarrying, electricity, gas and water, construction. "Services" (third column) includes finance, insurance, real estates and business services; community, social and personal services; wholesale trade and transportation. Fifth column: the number for Slovakia refers to 1997, the number for Romania to manufacturing only.
Sources: Boeri et al, 2002; first and third column OECD Short Term Economic Indicators for CEEc, EBRD (1999) for FSU. Fourth column: WB (1998). Fifth column: EBRD (2000) and OECD (1999). Sixth column: EBRD (1999). For Slovenia: Statistical office of Slovenia.

In Table 1.2.2 it is important to look both at the group aggregates, and at the singularities between the two groups, because they shed the light on important country peculiarities. In the CEEc, the fall of employment in industries (-10%) is replaced by the increase (+10%) of the service sector, while agriculture shows a limited negative trend (-0.4 %). If we look at the situation in the single countries, agriculture is the main employment sector in Romania (12%), while it decreased the most in Hungary (-9%) and in Czech Republic (-6.2%) in favour of services (respectively +15 and +12%). In the FSU, the highest decrease in industrial employment happened in Ukraine and Kazakhstan (quite -13%), together with a sustained increase in the service sector (+10%) and agriculture (respectively + 2.3 and 3% circa). In Belarus, the decrease in agricultural and industrial employment is compensated by the increase in the services.
The share of employment in the private sector in 1997 ranges between 80% in Hungary and 52% in Ukraine, with employment in smaller firms (<100 employees) reaching 50% in Hungary and just 13% in the Russian Federation, highlighting the not homogeneous path of the change in firm ownership in the different interested countries. Non-

agricultural self-employment is reported for few countries, and it ranges between 16% in Poland and 1.4% in Ukraine.

Thus, Table 1.2.2 shows the need to consider transition countries not as a homogeneous block, and the importance of the introduction of targeted policies in transition, accounting for the structural economic peculiarities. This point was, as demonstrated later on in this work, mostly neglected in the process of policy drafting and implementation, and often led to the introduction of unsuccessful policies which even worsened the conditions of the loosing areas from the transition process. This is the case of agricultural and rural areas, where the highest poverty rate in the CEEc is located, and the few past development promises were often unattended.

The role of reforming institutions in transition was later on studied as a determinant of the (not so positive) results obtained in the first transition decade. In particular, the following institutional features were examined: labour unions, fiscal policy (tax based income policy), minimal wages and employment protection legislation.

Labour unions found it difficult to change their role in the reforming process. In the former system they acted as a transmission belt from the Central Planner to the firm, thus they were not prepared for the role of contracting wages and employees firing. As a consequence, their membership decreased, as their presence in the coverage of collective bargain (only 30% in Czech Republic and Hungary), while segmentation among sectoral labour unions emerged. A tax based income policy was introduced in order to slow down the increase in wages, but it had a limited effect, also due to the difficulties in setting up a fiscal control authority, and in assuring its functioning (Boeri, 2000). Thus, they were often removed, as in Czech Republic in 1995, in the Slovakian 1996. Minimal wages were introduced, at different levels in the CEEc (quite 50% of the average wage) and the FSU (25% circa in Russia). Minimal wages constituted the basis for the calculation of other social benefices, but they were hard to enforce due to weak institutional bargaining power and the lack of labour inspectors' networking. Moreover, the employment legislation was introduced, but its functioning was linked to the new born courts and their capacity building.

The duration of unemployment benefits and their level (Boeri, 1997) impacted on the probability of finding a job, especially for the "hard to employ" population (older, unskilled people). In the CEEc, unemployment benefits were higher than in the FSU and more targeted to the lower end of the wage distribution.

The way these reforming policies were introduced contributed to determine different levels of earnings and income inequality: in fact, the Gini index increased much more in the FSU than in the CEEc, and Vodopivec (2004) mainly explains it with the role played by unemployment benefits in containing inequality in the CEEc, where they acted as a de facto minimal wages (Boeri, 1997).

While analyzing the previous tables and figure, we must remember the difficulties met by economists in data analysis, given the lack of accountable and comparable data. In fact, GDP decline was overestimated (EBRD, 1994), especially in the manufacturing sector (which prevailed over agriculture and services in the planned economy) due to

the difficulties in finding comparable data in transition, thus, analysts often used pre-transition prices. The activities of new private small and medium enterprises were imperfectly measured (often through energy consumption, as in Poland and Bulgaria, where they resulted similar to the EU average). The measure of registered employment in transition had low credibility, because it depended on the incentives to submit it, and the household surveys were introduced just since 1992.

The numbers presented and explained in this chapter show clear differences in the path followed and in the performances obtained by the CEEc and the FSU. Thus, ten year after the beginning of the transition process, a preliminary assessment of the results was provided (Stiglitz, 1999; Boeri, 2000), focusing on the reasons why the reform process was not as successful as expected, and it even failed in several countries (i.e. Russia). In particular, a clear reformers' responsibility in the misunderstanding of the market economy was recognized, because of their excessive reliance on neoclassical economic models and their limited knowledge of the reality they where going to intervene, and a general misunderstanding of the reform process, i.e. the importance of the pace and sequencing of transition, and the underestimation of the political pressures. The role of the institutional reforms (Boeri, 2000), the design of a new social contract able to gather citizens' support and commitment to reforms, and the introduction of a democratic decision process were largely neglected by the promoters of transition reforms. A clear example is provided by the way privatization was prompted and enforced, which in most countries prevented a sound development of the private sector. In fact, the private sector emerged mainly from fast and mass privatization, without the previous introduction of an efficient legal framework (for bankruptcy, for the transfer of assets), able to allow for the introduction of competition, and without the previous establishment of a clear institutional context, which would generate confidence in foreign investors in order to attract FDI. Moreover, in the reform process the initial conditions were neglected, especially in the business sector, where the new managers lacked the required expertise and were still linked to the old production model (where ownership and control gathered in the same hand), while a new, decentralized model of corporate governance was needed.

Therefore, in most cases privatization (as several other steps of the transition process) has been an incentive for the creation and maintenance of private (internal and foreign) interests, "the grabbing hand into the velvet glove" (Stiglitz, 1999).

1.3 Rising inequality in transition countries

The neo-classical adjustment policies provided to developing Countries stated that economic growth matters, because income and poverty moves together. Thus, fast growth was associated to fast poverty reduction, while increases in poverty levels were acute in declining economies, such as the CEEc and Central Asia. Rising inequality, as a consequence of a concentration of the new richness produced, was not contemplated. Several studies published by the World Bank (Ravallion et al., 1997; Dollars et al., 2000) on poverty reduction strategies, asserted that the measures of inequality would

have showed no tendency to get better or worse as a consequence of economic growth: thus, the rich and the poors' incomes were to rise together. The evidence provided by Russia, where the current economic growth based on the export of first raw materials benefited only *elites*, reports a different story: Russia has become the most unequal country in the world. In the last two decades, the example of transition countries shows that even in periods of sustained economic growth income inequality can spread, and poverty can increase (Förster et al., 1997). Moreover, rising poverty in the CEEc and CIS in transition affected rural areas where between 25 and 33 percent of the population was found to live below subsistence levels, based on expenditure measures[5] (Davis, 2001).

In front of the evidence of rising income inequality in transition since the late 1980s (Milanovic, 1989, Commander, 1997), policy makers in Washington took it for given, considering it a price to be paid for sustained growth (Rosser et al., 2000). In fact, in the excessive "equality" of the former Communist system, the right incentives for growth would not have realized. How much inequality can a politically, socially and economic dismantled society can afford, before the end of social solidarity, the insurgence of social discontent and turbulences, the increase in criminality and black economy, was not contemplated. Indeed, transition countries show that fast increasing inequality is accompanied by negative consequences in terms of poverty, living conditions and public health, social capital and rule of law, mining the effectiveness of the reforms introduced for development. Thus, transition countries moved soon from the "unjust equality" to "just inequality" (Csepeli et al., 1992).

Another critical point, which was never considered before the transition experience, is that high income inequality, where poverty spreads fast, could lead to increase the size of underground and non observed economy.

Unofficial or hidden economy was already present in the former Communist period, especially in the agricultural sector, due to the continuous shortages of basic goods on the official market that people fought through barter. The size of underground economy could vary considerably, due to the lack of a stated method to measure it[6]. Thus, Milanovic (1998) found that in the CEEc underground economy was estimated to account for 10-15% of GDP, but in ex-Yugloslavia it reached also 50% of GDP. Different levels are shown by Rosser et al. (2000), who found evidence for sixteen transition countries for 1994 of a strong relation between the size of the underground economy (in output produced) and the level of income inequality (measured by Gini index), which are reported in Table 1.3.1.

---

[5] Davis reports that, in expenditure measures, 10% of the population in transition countries is persistently in extreme poverty, implying malnutrition and other poverty health-related problems (such as alcoholism).

[6] Analysts tried to assess the share of underground economy in transition countries in several ways, according with the limited data available, mainly relying on households and firms electricity consumption (Rosser et al., 2000a; Lackó, 2000; Johnson et al., 1997). Electricity consumption is taken as an index of true economic output and compared with officially measured GDP to come up with an estimate of the share of the informal sector.

Table 1.3.1: Underground economy (UndEco) and Gini index in selected transition countries

Country	UndEco (%GDP)	Variation UndEco	Gini index	Variation Gini
Bulgaria	29.4	6.7	.340	.110
Czech Rep.	17.2	11.2	.239	.035
Estonia	24.6	5.7	.329	.127
Georgia	62.2	37.7	.560	.270
Hungary	28.1	1.1	.243	.02
Russia	38.5	23.8	.446	.186
Slovakia	15.4	9.4	.200	0.0
Slovenia	25.0	-1.7	.251	.036

Source: Rosser et al., 2000
Variation for both underground economy and Gini index between 1989 and 1994.

The Gini index[7] increased fast, and its coefficient moved from 25-28 in the pre-transition level to 35-38 during the transition process. By the way, the level of inequality captured by the Gini index is influenced by the low accountability of the transition and pre-transition statistics, and to the unofficial income differences accorded to members of the Party.

Slovakia, Slovenia and Czech Republic could avoid critical inequality levels during transition thanks to the introduction of policies targeted to the old and new poor (unemployment benefits, retraining courses, extension of social security and indirect redistribution measures). It follows that these countries had smaller underground economies and greater macroeconomic stability (to which higher tax revenues from formal economy contributed) associated to lower Gini coefficient (0.200 for Slovakia, 0.251 for Slovenia and 0.239 for Czech Republic) in comparison with Russia and Georgia (which show Gini coefficients respectively at 0.446 and 0.530). In particular, Slovakia shows a null increase in the Gini index in transition, also thanks to the governments policies which were able to offset the increasing wage dispersion (Garner et al., 1998), as a difference from Russia, where wage dispersion was found as one of the main determinants for inequality (Brainerd, 1998).

The increase in inequality was associated to the rising poverty (which was not reported by the official data before the system change), caused by the macroeconomic stabilization, the restriction of government expenditures, the trade and price liberalization policies (especially on basic food products), the rise of unemployment, the fall in real wages and the contemporary price volatility of most consumers goods (Davis, 2001). Milanovic (1996; 1998) finds that there could be no trade off between growth and equality in the transition process: the introduction of a proper set of targeted reforming policies and sound institutions could promote a harmonic growth path. Instead, pro-growth measures which don't account for the distributional effects can

[7] The Gini index ranges between zero (perfect equality) and 1 (maximum inequality). It presents an overall picture of inequality but it is less effective at indicating what is happening at the extremes of the distribution than such alternatives as the decile ratio, the Atkinson index or the Theil index.

cause increase in inequality, which would finally hurt the growth path. Milanovic mainly links the jump in income inequality to:

- the diversification of wages occurred with the removal of restrictions to SOEs privatization, as wages paid by the former public sector were less unequal and diversified than the ones paid by the new private one, where several former SOEs workers reallocated;
- the increased economic role of unofficial economy and self employment;
- the arbitrary distribution of former state properties.

It is clear that in a market economy, private firms pay wages to workers according to their labour productivity, which was low during transition: workers needed retraining to adapt to the new productive structure, for which their human capital and the former technologies they used were often obsolete, in order to be competitive on the internal and international market. These workers are just a part of the story: in fact, with privatization unemployment was finally disclosed, and lots of people lost their job and the facilities linked to it (social security, health care), and their pensions. Thus, income from wages in transition differs according to the new sectors and firms, to the unemployment conditions (length, presence of unemployment subsidies and their levels, social safety nets), to the presence of subsistence and out of the market activities, to the possession and use (lease, rent) of former state properties.

The way privatization occurred represented a considerable source of income inequality:

- where give-away or mass privatization to former company managers occurred, working places were saved in place of lower salaries, while from the new power relation a class of young oligarchs emerged;
- where effective privatizations (mainly to foreign investors) took place, unemployment rose.

Two main issues - the lack of targeted social transfers and the change in property relations - emerged as important determinants of rising inequality. In fact, as the Czech and Slovakian cases show, targeting the limited government resources available for public spending in transition could help preventing the spread of inequality and the fall into poverty of large shares of the population. Also, the distribution of former state properties, such as flats and land played a relevant role because it was mostly arbitrarily in the confused transition reforming period. A clear example is the distribution of flats to the previous occupants in Russian cities, where numerous families could receive very small apartments in the peripheries, while old widows living alone could get spacious flat in central Moscow. Land reforms took place in several fashions: mostly, land was redistributed in parcelized plots to the original owners[8] which have been expropriated by the former regime. This solution often threatened land productivity and income opportunities from agriculture in the years to come.

Finally, the role played by institutional reform is to be considered because institutions are vital for reducing inequality and poverty, reducing social exclusion (de Soto, 2000).

[8] The definition of the original owners vary according to the interested countries. For example, in Hungary the restitutive law went back to 1938 in order to account for the anti-Semitic laws.

In transition countries the process of institutional transformation was twofold: the old institutions and centres of power (the Party, the central planning agencies), which governed the former system, had to be removed, and a new democratic institutional system should be introduced (Nickel, 2005). In the FSU (e.g. in Russia and Ukraine), as a difference with the CEEc, this destruction-and-creation process was slow and affected by several disturbances, thus resulting in a low quality new institutional setting, which contributed to worsen the problems (recession, unemployment) of transition, and to increase inequality.

Despite the ideal tension toward people equality promoted by the Communist system, inequality existed also in the planned economies, and it was hidden by the Party. In particular, an underlying inequality was acquainted by the population:

- the existence of unreported non-pecuniary benefits for the nomenklatura *elites* (Rosser et al., 2000), which could access to goods denied to the rest of the population (e.g. quality food, clothes, cars, health care, housing, education, holiday, travels abroad, foreign currency);
- the persistence of shortages, which created unequal conditions between sellers and customers of different basic goods (Kornai, 1980), increasing the bargaining power of the former ones and constraining the latter ones to stand in lines and pay bribes;
- the diffusion of barter and unofficial economy, which advantaged farmers and subsistence producers;
- the differential in wages according to the region and area of residence (in urban areas wages were higher than in the rural ones).

Inequality continued to spread even in the final phases of transition and the external policy support to growth and convergence didn't contribute to alleviate it. In the CEEc, open inequality spread with the economic growth taking place in the pre-EU accession period, and assumed specific socio-demographic and geographical features.

The losers of the transition process were:

- the peripheries of the capital or large cities, the East bordering and the marginal areas which didn't benefit from the FDI flowing from Western countries, or from the first and conspicuous investments in material and immaterial infrastructures co-financed by the EU and by international donors, but they could just rely on multinational delocalization of low value added activities;
- rural areas which experienced de-industrialization;
- the agricultural population, which lost the market access with the end of the COMECON and suffered from price liberalization and from the end of collectivism.

A clear centre-periphery patter emerged in the CEEc:

- the capital town and the new growth poles became a sort of winners;
- the inhabitants of lagging behind areas, mainly aged people, low skilled workers who lost their job in transition and were not able to retrain, middle-age women were the losers.

1.4 The need for data reconciliation

Economic policy in the CEEc and in the FSU before the system change was made according to the directives coming from the Communist party: all the aspects of economic activity were established and five-year plans were set to translate economic policies into programs. According to the policies disposed by the central planner, the State Planning Committee (*Gosudarstvennyy planovyy komitet*, Gosplan) formulated the output targets for the planning periods. Targets were then refined by the regional planning bodies for each economic unit: industrial enterprises, state farms (*sovkhoz*) and collective farms (*kolkhozy* ; *kolkhoz*) had their specific output plan. In order to fulfil the plan, the process was "controlled" at every stage by a huge bureaucratic system composed by regional and sub-regional ministries and committees, in which corruption and a perverse system of incentives set-up dominated. In fact, as information flowed up and down, it underwent several adjustments.

Thus, at the end of the 1980s, when the national statistical offices of the CEEc and the FSU started to work on data reconciliation, in order to make their aggregates comparable with the System of National Accounts (SNA), important differences emerged. In the former system only a few key indicators were reported, based on "bridge tables", without providing the required cross-checks inherent to sound national accounting, i.e. the harmonization of data from income, production, and expenditure approaches (WB, 1992).

Therefore, the data used for composing the indicators reported above were published mainly in the second half of the 1990s, because of the need of the national statistical office to adapt them to the SNA from the material product system (MPS) used in the former Communist block (Khomenko, 2007).

Statistical adaptation constituted a serious issue for understanding what was happening in transition and the magnitude of the change, in order to plan reforming policies. The main characteristics of the statistical system in the Communist period (often neglected by transition studies) regarded the role of services, prices and inflation, and the "corrections" which makes it hard to compare the aggregates. Several accounts overestimations and underestimations occurred, which often exaggerated growth, influencing the Western misconceptions about the real size of the CEEc and the FSU economies. Moreover, crucial pieces of information, particularly on block-wide economic agents, could be omitted because they did not pass through the subordinate statistical systems.

MPS differed from SNA because the production and sale of several services were excluded from the production accounts (OECD, 2006). Within the MPS, the Net Material Product (NMP) was the aggregate most similar to our GDP: it included the services linked to goods production, e.g. the transports and trade, but it excluded the ones provided to households (education, healthcare, restoration) which were treated as government transfers to households, or transfers between households.

Prices in the CEEc and the FSU were not based on the equalization of producers' marginal productivity and consumers' marginal utility, because they were fixed by the

Central Planner. Thus, in the planned economies, prices were an accounting mechanism only established by the Planner for all goods and services according to the role of the product in the plan. In comparison with the market economy, consumption goods were overvalued and capital goods undervalued by the system of "plan prices", in function of the investment strategies, because the Central Planner aimed at diverting resources from consumption to investments. Moreover, this system caused shortages, wastes and oddities: grain cost much more than bread, leading farmers to feed livestock with bread.
MPS statistics were expressed in volumes rather than in current prices, which were in "comparable prices". Statisticians, in order to get deflated volumes, used as deflators of current prices figures the price indices which considered price changes just in case of identical goods. Statisticians followed only the price movements of new goods, thus understating inflation. Producers were required to maintain price stability. In order to do so, often "new" goods were created, which just as "new" slightly changed from the previous models in minimal details, but their price rose. By the way, as statisticians only considered price changes for identical goods, they did not report the increase in the comparable price index, while they overstated growth. This system supported the political will of the Central Planner, to show the Western countries and the non-aligned countries a powerful Communist bloc.

1.5 Reforming agriculture in transition: the CEEc and FSU perspectives

This chapter deserves a particular attention to the path followed by agriculture in transition countries, given the important role that the sector plays in the development path of a country, and thus by the policies introduced. Agricultural production in rural and peri-urban areas provides food and non-food commodities (fibre, cacao...), it is a source of rural labour and demand for the agri-food industry, thus composing the first voice of income for rural population. Moreover, especially in developing countries, according to the Engels' law the higher share of consumers' income is spent on food (Swinnen et al., 2006). Thus, agricultural policies detain a main role in promoting poverty-reduction strategies, contributing to the achievement of positive economic performances (Perkins, 1994; Green et al., 1998) and to the introduction of sustainable and diversified income opportunities in rural areas. Therefore, studying the agricultural reforms introduced in the transition process, and their effects and results obtained till now, could contribute to better understanding the current challenges of agricultural and rural areas in transition countries, and their development perspectives.
The analysis of the process of transition in agriculture followed by the CEEc and the FSU highlights similarities in the policies introduced but also relevant differences in the timing and degree of policy enforcement, which can explain the different results obtained after 20 years of agricultural transition. This is particularly the case for agricultural and rural areas in the CEEc which joined the EU in 2004 and 2007, which fared the worse off from transition and which are still lagging behind in the process of convergence with the EU average. In fact, in agricultural and rural areas the highest level of poverty in EU is still located (Bertolini, 2008), marginalization increased even

after the EU enlargement (Monasterolo, 2011). Here, in fact, the instruments introduced in the pre-accession period and later on under the EU Cohesion and the CAP framework were not able to contribute effectively to solve the development bottlenecks, because they didn't addressed the specific area problems (Csáki, 2009), which were often inherited by the unfinished transition process. A comparative analysis of the linkages between the need for agricultural reforms and the policies enacted in the reality of transition could provide useful insights for the introduction of more targeted development policies, in order to decrease development divergence *within* and *between* the countries. Thus, an overview on the evolution of the agricultural accounts in transition is provided, following a comparative approach. Then, the model of agriculture in transition is compared with the previous socialist one, with attention to price and market liberalization, farm restructuring, and the change in the relationship between incentives and public support. Then, the effects of the reforming policies will be illustrated, with particular attention to the role of land reform and its impact on the agricultural development in Hungary, which is chosen as a case study for the peculiarities of its agricultural and rural areas.

This analysis moves from the important findings in the literature of agricultural economics in transition provided by Cs. Csáki, J.F. Swinnen, Z. Lerman, K. Macours, W.M. Liefert, S. Davidova, E. Serova. I already pointed out the problem of data availability and comparability in transition countries: it is particularly in the agricultural sector that the lack of disaggregated accounts prevent for understating the magnitude of the phenomena analyzed, in particular the role of hidden unemployment, labour reallocation and productivity.

The trend of the main indexes of agricultural transformation in transition show common features, as well as country peculiarities while comparing CEEc, FSU and the Baltic countries. As evidenced for the whole economy, in the first years of transition gross agricultural output (GAO) fell in almost all the countries, and a slight recovery started some years later. The timing and degree of the fall-and-recovery path explains much about the different outcomes of transition in agriculture between the groups of countries (Table 1.5.1). In the first 5 years from the beginning of transition, GAO fell the most in the Baltic countries and in the FSU, while after 10 years a low level of growth was recorded just in Czech Republic, Poland and Hungary. The output fall (col. 1) stops earlier in Romania and in Slovenia (after 3 years), while in needs quite 10 years in the Baltic countries, in the FSU and in Slovakia. The lowest GAO level in transition was recorded by Latvia (just 37% of the pre-transition value), while it stopped at 77% in Poland and at 75% in Czech Republic and Romania. The change in output was often considered as the main measure for assessing the success of agricultural reforms. By the way, production was subjected to such a distortions (i.e. subsidized inputs and outputs) and negative incentives (lack of accountability in collective and state farms) that its variation could have been mainly caused by the change in policies, i.e. prices liberalization, that allow for production adjustments, according to the supply and demand.

Table. 1.5.1: GAO adjustments in transition

	Year GAO fall stops after transition	Lowest GAO	Avg. Growth GAO 0-5 years	Avg. Growth GAO 5-10 years
FSU				
Belarus	9	57	-9,3	-1,3
Russia	8	58	-8,7	-0,5
Ukraine	9	51	-7,3	-4,4
Baltic countries				
Estonia	8	41	-11,3	-5,2
Latvia	9	37	-12,9	-5,2
Lithuania	9	64	-7,3	-0,1
CEEc				
Czech Rep.	8	75	-5,6	0,5
Hungary	6	69	-6,9	0,8
Poland	5	77	-5,2	2,1
Slovakia	10	68	-5	-2,5
Bulgaria	7	57	-8,7	-0,6
Romania	3	75	-1,4	-0,1
Slovenia	3	65	-4,1	-0,5

Source: adaptation from Swinnen et al., 2006 and FAO statistics.

Economists consider unemployment as the best proxy for the introduction of transition policies; in the agricultural sector, labour productivity could serve this role. By the way, when comparing disaggregated measures in transition countries, we must be aware of the limits of data availability and accountability. While agricultural labour productivity (ALP) would be better calculated as Total Factor Productivity (TFP) or output per agricultural work unit (AWU), because it weights misreporting in unemployment indexes, it can often be calculated as output per farm worker. In several transition countries, surveys and data sources don't distinguish between full-time and part-time employment in agriculture, thus underreporting increases in labour productivity when part time work (i.e. on family subsistence plots) is high (Swinnen et al., 2006). Moreover, Lerman et al. (2004) evidenced how agricultural labour force is often underemployed in the FSU: several rural workers were, in the middle 1990s, still officially employed in collective farms (or what remains of them), but they spent a lot of time working at their own small land or in side activities, which are not reflected in official statistics. Instead, increases in agricultural workers in some countries (i.e. Romania) are linked to the lack of labour reallocation opportunities after the decline of the industrial sector, as well as by pro-births demographic policies.

If we account for the difficulties in working with official data on labour use in transition countries, the use of ALP in order to show changes in labour productivity can explain a lot of the reform path followed. Just like output, also labour productivity experiences an initial fall in the CEEc, but later it start rising (Table 1.5.2). In fact, the reduction in

labour use in the CEEc (-35% in the first five years, with -57% in Hungary and -46% in Czech Republic) and in the Estonia (-58%) contributes to recovery in ALP (+11.8% in Hungary, +6.8 in Estonia after 10 years from the beginning of transition). At the same time, FSU, Romania and Bulgaria, where initial output fall was less pronounces, experience increases in labour use, and decreases in ALP: -10.3% in Russia, -7.3 and -7.7% in Bulgaria and Romania respectively after 10 years.

Table 1.5.2: Change in ALP in transition

	Year ALP fall stops after transition	Lowest ALP	Avg. Growth ALP 0-5 years	Avg. Growth ALP 5-10 years
FSU				
Belarus	4	69	-6,4	3,6
Russia	10	62	-8,7	-0,5
Ukraine	9	52	-8,4	-3,1
Baltic countries				
Estonia	1	76	6,8	3,2
Latvia	6	46	-11,5	3,7
Lithuania	5	62	-9,2	4,6
CEEc				
Czech Rep.	0	100	4,7	7
Hungary	0	100	11,8	4,7
Poland	3	96	-0,2	7,8
Slovakia	0	100	1,9	3,8
Bulgaria	7	58	-7,3	-1,7
Romania	9	59	-7,7	-1,2
Slovenia	3	61	-3,2	-0,4

Source: ILO, WB, national statistics.

Although TFP is calculated just for some years and for some countries, due to the lack of proper statistical information, Macours et al. (2000) find that TFP moves accordingly to the partial indexes: it declines in the CEEc in the first years of transition, but it recovers there fast after 1992, as also in Estonia and Lithuania (Lerman et al., 2003). TFP estimations for the FSU are more ambiguous (some studies report increases while others a fall) as they are subject to the differences in sampling.

Agricultural yields follow the trend showed by ALP: they fall in the first years of transition in the CEEc, with the exception of Romania where increases in livestock yields overcome the fall in crops (Swinnen et al., 2006). In the FSU, yields fall at the beginning of the 1990s (also -25%) and continue to decline after 5 years (e.g. in Ukraine). The change in quantity (and quality) of inputs, such as fertilizers, tractors use and land, much contributed to the change in agricultural yields. In fact, in the planned system production inputs where directly provided by the State or heavily subsidized though the soft budget constraints that characterized the collective and state farms. At

the turn of transition, with the liberalization of prices, the end of subsidies and the privatization of land production costs increased. Thus farmers chose to reduce the use of inputs, and also their quality decreased (i.e. substituting the chemical fertilizer previously used).

Table 1.5.3: Growth of input use in agriculture (index =100 in the first year of reform)

	Fertilizers		Tractors		Land		Labour	
	5	10	5	10	5	10	5	10
FSU								
Belarus	25	40	92	62	98	97	86	73
Russia	11	9	82	61	98	98	100	92
Ukraine	24	11	92	68	100	99	106	102
Baltic countries								
Estonia	17	20	106	109	107	106	40	35
Latvia	21	53	82	89	99	97	79	77
Lithuania	10	16	118	137	100	100	113	103
CEEc								
Czech Rep.	29	24	58	82	103	103	54	44
Hungary	15	18	72	61	94	95	43	37
Poland	35	38	114	113	99	98	89	97
Slovakia	17	15	89	77	100	100	71	60
Bulgaria	25	14	69	51	98	98	92	99
Romania	27	17	106	110	100	100	118	110
Slovenia	56	52	56	118	91	83	95	87

Source: FAO

As shown in table 1.5.3, the use of fertilizers after 5 years of reforms plummet everywhere, and after 10 years of transition it starts to recover consistently just in Estonia. Some countries use more tractors already after 5 years of transition (Estonia, Lithuania, Poland and Romania), but after 10 years the index grows just in Lithuania, Czech Republic, Hungary and Slovenia, while it falls considerably in the FSU. The use of land is not subject to big changes in the first 10 years of transition. After 5 years, employment in agriculture falls everywhere except in Lithuania, Ukraine, Romania, and a general decreasing trend is common to all the examined countries after ten years from the start of transition.

Data provided in this table will be useful later in order to explain the move to subcontracting activities of former state or collective farms, in countries (such as Hungary) where the land reform introduced prohibited land ownership to the reformed cooperatives.

CHAPTER 2

ASSESSING THE ROLE OF AGRICULTURE ON CONVERGENCE IN THE LIGHT OF THE EU MEMBERSHIP: THE CASE OF HUNGARY

2.1 The quest for convergence in the enlarged EU

The quest for growth has been vehemently pursued by development economists in the last century since the search for the determinants of the wealth of nations was initiated by Adam Smith in 1776. Then, it passed through Lewis's "surplus labour" model, Rostow's stylized facts and Kutznet's critiques, the neoclassic visions by Gerschenkron (1962) and Gomulka (1971), till the opposition coming from the endogenous and new economic geography growth theories.

Within the two main economic visions which characterized the divided World till the fall of the Berlin Wall, the free market based capitalist model and the planned economy, which characterized the Communist block, different growth remedies were proposed. In particular, Western economists working for International Organizations and Funding Institutions (such as the World Bank and the International Monetary Fund) have been struggling to translate the neo-classic economic principles, highlighted by the Solow-Swan model (1956), into reform policies for developing countries. Their objective was the introduction of correcting economic policies able to prompt a process of sustained growth[9] which would have helped lagging behind countries to catch up, closing the gap with Western economies. The elixir for growth has been identified in several means, from foreign aids to conditional loans and debt forgiveness, but none of them has delivered its promises (Easterly, 2002). Although some initial results could be recorded, as the East Asia experience shows, they have been shortly dismantled by the financial and economic crises which recurrently characterize the international market. The growth remedies failed in the tropics (the first experiment), in most of African countries and in the ex-communist countries, where they were applied by supporters of the *big-bang approach* to growth (Lipton et al., 1990; Sachs et al. 1994; Balcerowicz, 1995).

All their pro-development prescriptions were based on the need to fill the "financing gap" with the required investments coming from Western donors, where based on the Lewis's assumption of the centrality of rapid capital accumulation, because growth was directly proportional to investments. Interestingly, already in the early 1920s Soviet economists introduced the same idea, conceptualized by Kovalevskii in "Planned Economy" in 1930, which based the Soviet growth on a growth proportional to investments idea. This theory was promptly applied in the ex-URSS though forced investments in machinery and heavy industry, where the excess labour from rural areas would have been pulled to work.

[9] The economic growth rates in developing countries should have been much higher than the ones recorded in the Western ones, in order to close the economic gap, as explained by neo-classical economists.

Cohesion was also a central issue in the foundation and enlargement of the European Union[10] (EU), till the development in 1989 of a proper set of policies and instruments under the Structural and Cohesion Policy framework, aimed at decreasing development inequalities between the former Objective 1 (now Convergence) regions, and the bulk of faster growing ones (the so called *blue banana*) though economic convergence. The first results about catching up in the EU-15 since the second half of the 1980s showed a slow convergence performance together with the persistence of a core-periphery pattern at the regional level (Petrakos et al., 2005), where inequality spread (+10%) (Pose, 2002), and even some evidence of club convergence, despite the amount of EU budget devoted to it. Integration in the EU-12 appears to have reduced disparities across countries but not across regions within countries (Overman et al., 2002), especially in the Convergence regions, where the most of funds were allocated (Quah, 1996), highlighting the case of an equity/efficiency trade off, and a debate on the role of Cohesion funds in the beneficiaries Countries (Sapir Report, 2003). This is also the case of the NMS: in fact, after quite a decade from the accession, between EU-27 nations inequalities are gradually diminishing while regional inequality increases, with the capital towns able to attract FDI and develop, while agricultural and rural areas, especially at the Eastern and Southern borders, lagged behind (Monasterolo, 2008).
Thus, monitoring and evaluating the efficiency of policies for cohesion and convergence became a priority during the last EU Eastern enlargement, occurred on 1st May 2004[11] because the NMS brought to the EU about 500 millions of new citizens, and they were characterized by very different structural features and problems unsolved in transition, inducing a redistribution of the EU budget from the former beneficiaries to the new comers, especially under the CAP. In fact, at the time of the membership the accessing countries presented lower economic performance: Hungary could reach 60% of the average EU-25 p.c. GDP, the level of the poorest regions in the EU-15 such as Iperios (Greece), while Latvia stopped at 30%. The same data was even lower for Bulgaria and Romania, which joined the EU in 2007 (quite 25% of EU GDP).
The case of Hungary is of particular interest because it was considered the "best performing" transition country (WB, 1997), and it was also included among the first block of CEEc negotiating the EU accession, but since 2008 the country is undergoing severe economic (and political) troubles which hinder its EU membership. Moreover, the country represents a good example of how the lack of institutional and implementing abilities, together with low EC control on community funds, could vanish the EU value added, especially in the most in need peripheral and rural areas, increasing the internal gap.

[10] The objective of the European cohesion policy is defined in Articles 2 and 4, and Title XVII of the Treaty establishing the European Community. Cohesion policy should contribute to *promote economic and social progress as well as a high level of employment, and to achieve balanced and sustainable development*, and Article 158: *in particular, the Community aims to reduce the disparities between the levels of development of the different regions and the backwardness of the least favoured regions or islands, including rural areas*.
[11] The Treaty of the European Union Enlargement was signed in Athens on 16/04/2003.

Previous analysis investigated income-level convergence in the enlarged EU following different methodologies: Paas et al. (2007), Matkowski et al. (2006) use parametric methodologies; Ertur et al. (2006) use exploratory spatial analysis; Ezcurra et al. (2007) adopt a non-parametric approach, highlighting the role played by neighbouring regions for explaining the dispersion in the distribution of GDP per worker; Chapman et al. (2010) use non-parametric and spatial regimes analyses. They mainly find evidence of catch-up during the integration process, but also a new North–West/East polarization pattern which replaces the previous North–South one for the EU-15. In particular, Matkowski et al. (2006) tests that there is a clear β-convergence in income levels among eight EU accession countries in the period 1993-2005, and income differences between individual countries tend to diminish. Åslund et al. (2007) find that economic growth in the last decade has, on average, been higher in the NMS than in the EU-15, and they use this as evidence of catch-up and convergence between the two blocks of countries, but they forget to highlight that most of this growth in the NMS has been concentrated in, and around, capital cities (Gorton et al. 2009).

Moreover, Chapman et al. (2011), following the approach developed by Rodriguez-Pose (1998), analyze the relevance of socio-economic and specialisation groups in affecting the *within countries* convergence in the EU-27, using the sigma convergence and a spatial approach. They find that socio-economic clusters explain divergence in regional p.c. GDP within NMS, where regions specialised in knowledge-intensive services and urban regions are the better off from the integration process, while regions specialised in agriculture, in low tech industries have been falling behind.

By the way, they don't address the growth path at a disaggregated territorial level where the most of inequality realizes, and they don't look at how sub-regions perform together in the NMS, thus preventing from further efficiency analysis of the EU funds. Moreover, although the role of performing agriculture in NMS for convergence has been asserted, the path followed by agricultural and rural areas in the NMS during the EU integration process is still much unknown, while there is wide interest from policy-makers about productivity convergence in agriculture[12] (Stilianos et al., 2010), as for the impact of CAP support.

Therefore, this chapter contributes to:

- assess the process of convergence among the NMS regions (NUTS 3 level) using a non-parametric approach (stochastic kernel);
- assess whether convergence in p.c. GDP (PPS) between 1997 and 2008 occurred among Hungarian counties (NUTS 3) applying a non-parametric approach of the convergence (stochastic kernel), in order to evidence the evolution of the growth distribution followed by the statistical units, comparing the results with the evidences from the previous convergence analysis at the country level;

[12] Agricultural labour productivity in Nuts 2 regions in the enlarged EU has been studied testing for β and club convergence (Stilianos et al., 2010), which don't allow to understand the internal distribution dynamic between the initial and final year of analysis.

- perform a preliminary impact analysis of CAP introduction on the convergence using a conditional convergence model (Quah, 1997)[13];
- analyse the contribution of the performance recorded by the agricultural sector for the economic convergence, applying a σ-convergence analysis[14] on agricultural labour productivity (ALP) of the Hungarian countries between 2000 and 2007, because it was identified by the literature as the most explicative variable for performing transition in agriculture (Swinnen et al., 2006; 2009).

The choice for using both non-parametric and parametric approaches was moved by the limited availability of official data, and also by the complementary information they can provide on the process of convergence. In fact, while the parametric approach shows the distribution of the average dynamic of the sample, the non-parametric one underlines the movements of the single statistical units with respect to the initial period.

2.2 Methodology

Parametric models were used for the analysis of convergence since the middle of the 1980s: the concept of β-convergence was studied by Barro and Sala-i-Martin (1991, 1992), while σ-convergence was studied by Mills (1986), Lichenberg (1994), Carree and Klomp (1997) among the others. Parametric approaches move from the neoclassic growth models[15], and are based on the estimation of synthetic indicators: β-convergence assess whether poorer economies grow faster than the more developed ones, and the σ-convergence, based on the concept of variance, studies the average dispersion of the economic performance in the considered time period (Sala-i-Martin, 1996).

The main idea behind this convergence hypothesis is that, given the same exogenous technology, countries with low per capita income and low capital per worker would provide higher returns to capital, which would attract more foreign capital, insuring a higher accumulation rate and faster growth. The condition is that the economies concerned are open to international markets. According to Solow's results, (i) an economy starting from a low p.c. GDP level (and low capital per worker) tends towards a steady-state and grows faster than the economy starting from a higher income and capital level; (ii) economies approaching different steady-states need not converge.

The basic equation which describes the drive of the economy towards a steady-state in the Solow model is:

[13] Decoupled payments per farm are weighted for the Single Area Payment System (SAPS) payments per county was chosen as conditioning variable, in order to include only payments directly affecting farm income (as a difference from investments or program related payments, which impact on farm income just in the medium to long term).

[14] We recur to this parametric methodology due to the lack of time series data for the variable Agricultural Working Units (AWU).

[15] See the Solow-Swan model (1956) which considers closed economies characterized by exogenous saving rates, production functions with a decreasing productivity and constant returns to scale, similar consumption/production preferences and technology, and tend towards the same steady state, where the growth rates tend to be inversely correlated to the initial p.c. GDP (Sassi et al., 2011).

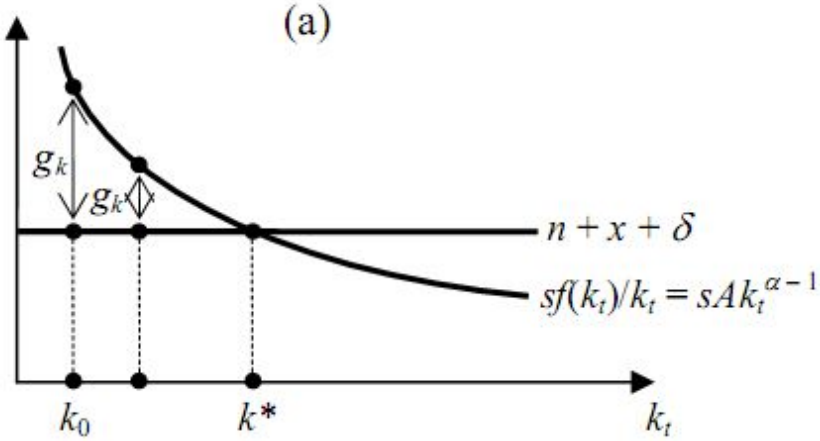
$$k_t = sf(kt) - (n + x + S)k_t \quad \text{or} \quad g_k = s \qquad (n + x + S),$$

where: k - capital per unit of effective labour, k - increase of capital per effective labour unit, g_k - growth rate of capital, n - growth rate of population, x - rate of exogenous technical progress, δ– rate of capital depreciation, s - saving rate, $f(k)$ - production function.

According to the neoclassical production function output is proportional to capital, thus similar equations characterize the dynamics of GDP per unit of effective labour (Matkowski et al., 2006).

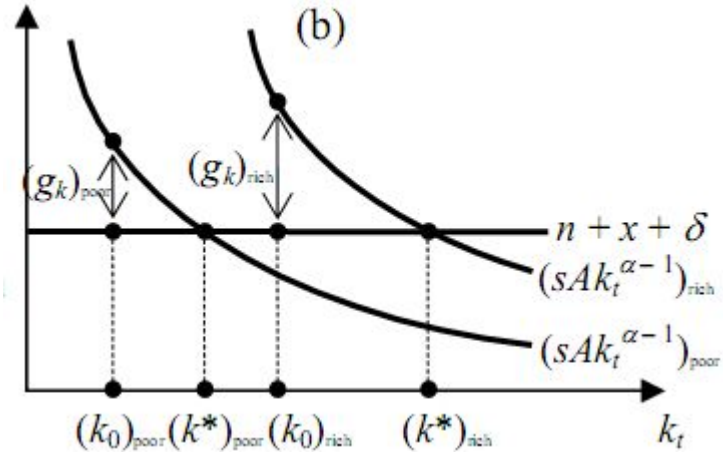
Figure 1 (a) proves (i) in the parts of the equation (1b). The growth rate equals the vertical distance between the curve *sf(kt)/kt* and the line n + x + δ. This convergence model is limited to the situation when both economies tend to reach the same steady-state: the economy starting from capital level k_0 and reaching the steady-state capital value k^* would reveal a decreasing growth rate. In this case, less developed economies would grow faster than more developed ones.

Figure 2.2.1 (a): Unconditioned β-convergence



By the way, Solow also proved the existence of a "conditional" β-convergence, where the two countries reach different steady state levels, thus never converging. Let us consider two countries: a poor one and a rich one, with different saving rates. Since saving rate in the rich country is higher, its steady-state value of capital is also higher than in the poor one. This is shown in Figure 1b. Although the rich country starts from a higher capital level, now it also reveals a more rapid growth, because it tends to a different steady-state than the poor country. In this case, both economies would not converge.

Figure 2.2.1 (b): Conditional β-convergence



Therefore, it is important to estimate the value of the parameter β, because it determines the speed of convergence toward the steady state, as from the following equation:

$$g_y \approx \beta\left(\ln y^* - \ln y_t\right)$$

The parameter β shows what part of the distance from the steady-state the economy is covering during a time period: if β = 0.02, the economy covers annually 2% of the distance.
The hypothesis of unconditional β-convergence is specified as it follows: the equation

$$\log \hat{y}(t) = e^{-\beta t} \cdot \log \hat{y}(0) + (1 - e^{-\beta t}) \cdot \log(\hat{y}^*)$$

shows that the average per capita income growth rate, y, in a time period from 0 and t, T the years included in the time period, is given by the following equation

$$\frac{1}{T}\log\left[\frac{y_{i,j,t}}{y_{i,j,0}}\right] = B - \left(\frac{1 - e-\beta t}{T}\right)\log\left(y_{i,j,0}\right) + \mu_{i,j,T}$$

with *j* regions, *μ* error term and *B* the constant.

$$b \equiv \left[(1 - e^{-\beta T})/T\right]$$

b decreases when T increases, and for a sufficiently long time period it tends to vanish, because the growth rate decreases with the increase in income. Thus, the parameter of convergence has to show a negative sign, in order to support the neoclassical model (Barro, 1991; Baumol, 1986; Barro, Sala-I-Martin, 1992; Quah, 1993).

The σ-convergence looks at the distribution of the variable in a certain time period. There is σ- convergence when the variance of a variable/indicator decreases in the time period considered.
Three tests were calculated to assess the presence of σ – convergence:
- T_1, calculated by Lichenberg (1991, 1994), consists of a comparison between variance at the initial period and variance at the end period of analysis

$$T_1 = \hat{\sigma}_1^2 / \hat{\sigma}_T^2$$

where:

$\hat{\sigma}_1^2$ is the variance between the considered countries at the starting year;
$\hat{\sigma}_T^2$ is the variance at the final year.

T1 distributes as an F test (n-1; n-1), where n is the number of observed statistical units[16]. Carree and Klompt (1997) demonstrated that using T1 a high probability of committing II type error (rejecting the true convergence hypothesis) exists[17], which leads to evidence no variance change between the two time periods. In order to avoid this problem, Carree and Klompt provided two other tests, T_2 and T_3, to verify the equality of the two groups' variances in time:
- is basically a likelihood test, and distributes as a χ^2 (1)

$$T_2 = (N - 2{,}5)\ln\left[1 + \frac{1}{4}\frac{\left(\hat{\sigma}_1^2 - \hat{\sigma}_T^2\right)^2}{\hat{\sigma}_1^2\hat{\sigma}_T^2 - \hat{\sigma}_{1T}^2}\right]$$

where:

$\hat{\sigma}_1^2$ is the variance at the starting year;
$\hat{\sigma}_T^2$ is the variance at the final year;
$\hat{\sigma}_{1T}^2$ is the covariance between the initial and the final year.

- T_3 is a correct distribution of T_1, and it distributes as N (0,1)

$$T_3 = \frac{\sqrt{N}\left(\hat{\sigma}_1^2 / \hat{\sigma}_T^2 - 1\right)}{2\sqrt{1 - \hat{\pi}^2}}$$

where:

$\hat{\pi}$ is estimated by the following OLS regression:

[16] In this case, n is the number of countries at time 1 and at time *t*.
[17] The probability to refuse to reject H0 (H0: $\sigma_1^2 = \sigma_2^2$) is assumed (Crescenzi et al., 2007).

$$Y_{iT} = \pi Y_{i1} + u_i$$

i = 1,…, N ; Y is a generic indicator and u is the error component,
π is function of the β parameter of the β – convergence.

Caree and Klomp (1997) also provide the significance level which allows us to accept or reject the hypothesis of quality of variances between the two years considered, and to assess the presence of convergence.

The first condition for convergence is $\hat{\pi}<1$, and then the significance of the tests T_1, T_2 and T_3.

If $\hat{\pi}<1$, and the value of the statistical test is above the one correspondent to the chosen significance level[18], it is possible to reject the null hypothesis of variance equality between the two groups in the two years, assuming the presence of σ – convergence. Instead, the value of the statistical tests is lower, we cannot reject the null hypothesis, and we assume the equality of the variance distribution and the lack of convergence.

If $\hat{\pi}>1$, T_3 cannot be calculated, and we have a precondition for divergence, which takes place if the T_2 value is above the significance level.

β - convergence and σ-convergence different from a conceptual point of view: in fact, the presence of the latter one implies the presence of the former one, but the opposite is not true. Thus, β- convergence is said to be condition necessary but not sufficient for assessing the presence of σ - convergence[19]: income differences between countries can rise and at the same time less developed countries may develop faster (Barro and Sala-i-Martin, 1992).

The increase in time series data availability, and the limits showed by synthetic measures in assessing convergence: apart from relying on the neoclassic assumption of stable economic growth (Quah, 1993), they are not able to catch the dynamics of the internal distribution (Quah, 1996) neither to underline the existence of a subgroup of regions presenting different dynamics of growth from that of the average of the sample (Bernard et al., 1995; Quah, 1997), and they return different and often opposite results according to the data and number of regions analyzed. In particular, the estimation of β is characterised by a systematic tendency towards 2 percent (Canova et al., 1995), while σ-convergence is high influenced by the presence of outliers, which leads to an underestimation of convergence. Finally, it was demonstrated that an initial evidence of catching-up can subsist together with an increase in sub-regional divergence, as a trade-off between national and sub-regional convergence evidenced by the inverted U curve by Williamson, due to the concentration of economic activities in specific areas, or growth poles (agglomeration economies, Viesti, 2004).

[18] The probability associated to the critical values corresponds to α= 0.05.

[19] Convergence depends on the β parameter and also on the R^2 value of the regression equation, thus on the variability around the regression line (Lichtenberg, 1994).

Thus, since the 1990s the endogenous growth school developed new, non-parametric approaches to the analysis of economic convergence[20]. Among them, Quah's econometric model based on the stochastic kernel presents several advantages, because it provides a dynamic analysis of per capita GDP density function, looking at the evolution of the cross-country distribution of p.c. GDP in PPS. The stochastic kernel can be considered as a kind of transition probability matrix (or Markovian matrix) where classes are defined in a continuum, because it estimates the whole marginal density function of for the variable (p.c. GDP in PPS) though the years. It also allows assessing the long term perspectives of the distribution of the chosen variable: in fact, the final output is an ergodic income distribution estimated on the observed variations in the analyzed period. As a difference from the parametric methods, this dynamic analysis is able to evidence the presence of two main characteristics:

- persistence, or if the classification of regions according to their p.c. GDP doesn't change (rich economies stay rich, and the poor ones stay poor);
- polarization, better known as the phenomenon of twin peaks or convergence clubs, where countries move toward different groups, diverging (the opposite of what is required for convergence)[21].

Let us define:

F_t the distribution of incomes (p.c. GDP) at time t
F_{t+1} the distribution of incomes at the following time.

There is an operator M (the stochastic kernel) that maps the evolution of the distribution from time t to time $t+1$. The operator M can be defined by:

$$F_{t+1}=\mathrm{M}+F_t \qquad (1)$$

Repeated for the distribution of all the analyzed years, it is possible to obtain an operator M which describes the transition of the distribution from time t to time $t+s$. Assuming M to be invariant in time, we obtain an estimator for the future distribution of density, that is:

$$F_{t+2s}=\mathrm{M}F_{t+s}=\mathrm{M}(\mathrm{M}F_t)=\mathrm{M}^2F_t \qquad (2)$$

$$F_{\mathrm{t+rs}}=\mathrm{M_r}F_{\mathrm{t}} \qquad (3)$$

[20] The introduction of non-parametric models able to observe the path followed by the statistical units in the time period considered was possible also thanks to the increase in statistical information.
[21] *Twin peaks* phenomenon, within persistence, are the most frequent features observed in Quah's analysis on economic convergence (1993).

If r→∞, then we obtain an estimate of the limit distribution of incomes at the end period which allows us to exploring the changes occurred in the observed period, the distributive characteristics of p.c. GDP (i.e. if the evolution in the future shows a similar trend to the previous years), and to assess if convergence takes place.
Through the graphic representation it is possible to follow the movement of the distribution though the years:
- on axis *t1* the possible values of the p.c. GDP in PPS for each statistical unit at the initial period are reported;
- axis *t2* shows the possible values in the long term (a not specified period in the future);
- the axis "kernel" reports the estimates of the kernel function.
The graph should be read starting from the main diagonal of level (t1, t2), where the points are determined from the same values at time t1 and at time t2.
Two extreme cases can occur:
- the straight line at 45 degrees defines a situation of **persistence**: if the kernel surface is entirely distributed along this diagonal, the observed countries don't change their position in time;
- the alignment of the kernel surface along the secondary diagonal indicates that the evolution of the distribution of p.c. GDP determines a **reversal** of the initial situation (in the long term, poor regions get rich and vice versa).
Perfect convergence occurs when the kernel surface is parallel to axis *t1* around a single modal value: all the units distribute around the same income level at time *t2*, because in the long run poor regions would grow more than the richest ones, until all the regions show similar income levels. The process of convergence is represented by a counter-clockwise rotation around the main diagonal line, and in two directions: in case of income values below the average, rotation of the peaks disposed under the main diagonal; modal rotation above the main diagonal line in case of wealthier regions.
The concept of conditional convergence was introduced (Barro and Sala-i-Martin, 1995) which considers for the structural differences of the economies, looking for the variables which are able to influence the convergence path[22], in order to derive useful insights for political economy. Introducing conditioning in the convergence analysis, we move away from the hypothesis of a single steady state according to which every region convergence, thus leaving the perspective for catching up of poorer regions. It is possible to better specify the absolute β-convergence model conditioning the path followed by p.c. GDP to one or more influencing variables:

$$\frac{\left(\log\frac{y_{i,t}}{y_{i,0}}\right)}{t} = a - \beta l \log y_{i,0} + \gamma Z_{i,t} + u_{i,0,t}$$

[22] Assessing the presence of conditional convergence would mean that, if all the economies start from the same initial conditions, they would follow the same growth path, while if starting from different levels they would reach specific steady states to each economy.

where $Z_{i,t}$ represents the variables able to influence p.c. GDP growth.
This approach observes only the relation between the statistical units analyzed, in their average values. In order to overcome this limit, Quah (1997) provides a methodological framework for the analysis of the distribution of conditioned p.c. GDP, assessing how the conditional variable influences the distribution function of the conditioned one (p.c. GDP in PPS). In fact, explaining the dynamics of the conditioned distribution corresponds conceptually to analyze the effects of the conditioning on the distribution of the study variable (Quah, 1997).
Moving from the parametric approach of β-convergence, it is possible to analyze whether the conditioning variable Z explains the variable of interest Y[23], highlighting possible differences in the two expected values E(Y|X,Z) and E(Y|X), for the respective distributions Y|X,Z and Y|X. When the two distributions are linear,

$$E(Y|X,Z)=\beta X+ \gamma Z \qquad (4)$$

it is possible to test if the regression coefficient $\gamma = 0$
Quah explores the possibility for equality of the conditioning distribution of Y|X,Z and Y|X[24], and the transformation of Y in Y|Z, which can be represented mathematically by the stochastic kernel, the operator which models the changing distributions, and thus the effects of conditioning (Quah, 1997). In case of equality of the two distributions, Z doesn't explain Y[25].
Therefore, the stochastic kernel can perform the following operation:

$$F_{z,t}=M*F_t \qquad (5)$$

where $F_{z,t}$ is the distribution of variable Y conditioned to variable Z at time t and F_t is the unconditioned distribution of Y at time t. The operator M provides information on the origin of the evolution of the distributions through the years. It observes how the distribution changes when passing from an unconditioned variable to a conditioned one; then, the stochastic kernel is applied to the residuals of the time series of the conditioned distribution, providing results for the convergence analysis. The use of the stochastic kernel still leave to the researcher the choice for the conditioning variable to include, according to the structural and development peculiarity of the areas analyzed.

2.3 The sample and the data

The composition of the sample, and the time period, depend on data availability at NUTS 3 level. As a difference from previous convergence analysis on NMS, here we look at the convergence pattern at the sub-regional level, in order to derive policy

[23] It works also when X is included in the model.
[24] In case X is a null variable, we would study the relationship between the conditional distribution Y|Z and the unconditioned distribution of Y.
[25] The variations in Z don't influence the distribution of Y.

implications and suggestions from the results. P.c. GDP is still considered the main indicator of growth, and thus it is adopted as explanatory variable to estimate the process of convergence.
The non-parametric convergence analysis on all NMS counties (NUTS 3) uses Eurostat data for p.c. GDP (PPS) available from 1999.
The non-parametric analysis on the twenty Hungarian counties, p.c. GDP (PPS) from 1997 (year when the EC agreed on the enlargement negotiation procedures at the Luxembourg European Council, and initiated the participation in Community programmes as pre-accession strategy for the candidate countries) to 2008 (chosen as final year due to data availability). Data on the p.c. GDP PPS (Purchasing Power Standard) at NUTS 3 level are provided by Eurostat. This variable allows us to better compare the wealth levels of different statistical units, accounting also for the different level of prices (Leonardi, 1998).
It was quite difficult to gather statistical information on the payment provided under the CAP to Hungarian farms at a sub-regional level. Moreover, we wanted to include the CAP payments which directly contribute to farm income: in fact, support to investments, or provided under specific programs (i.e. rural development, Leader approach) would show effects on farm income just in the medium term. Thus, it has been decided to weight the data on the decoupled payment support at the regional level in Hungary (data provided by the FADN/RICA database) from 2004 (the year of CAP introduction in NMS) to 2008 for the number of successful applications for SAPS support, provided at the county level by the Hungarian Payment Agency (Mezőgazdasági és Vidékfejlesztési Hivatal, MVH). Then, the obtained value is used as conditioning variable in the conditional convergence analysis of GDP growth.
Agricultural labour productivity (ALP) has been chosen as explicative variable for the performance of the agricultural sector in former transition countries, according to the last findings of the literature (Swinnen et al., 2006; 2009). The indicator is calculated as gross agricultural value added (GAVA) on annual agricultural working units[26] (AWU), and both measures are available at NUTS 3 level (Eurostat). A parametric approach (σ-convergence analysis) has been chosen to calculate convergence of ALP between 2000 and 2007 among Hungarian counties because time series for AWU are not provided. Data on GAVA and AWU at NUTS 3 level are also available on Eurostat.

2.4 Analysis and results

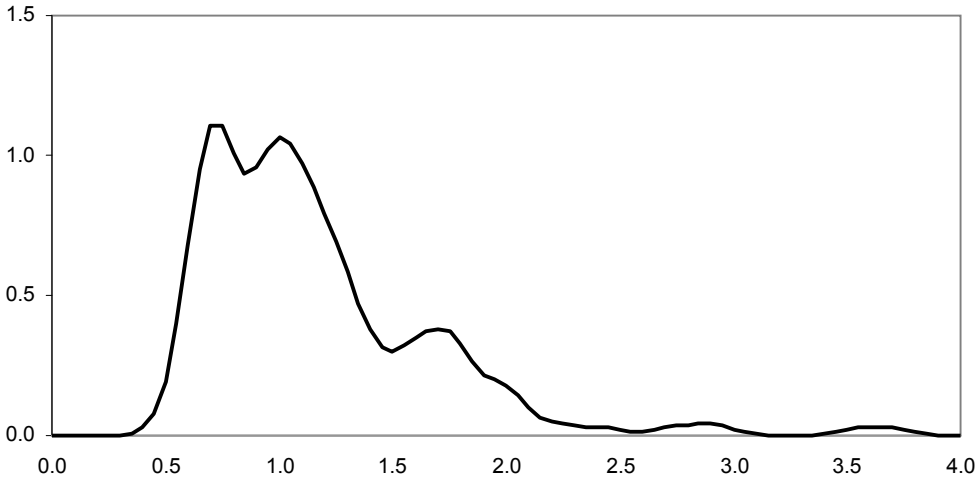
2.4.1 Assessing convergence between the NMS: a non-parametric approach

Previous studies on convergence in the CEEc evidenced the presence of convergence of countries towards the EU average, but the persistence and even increase in divergence at the sub-regional level. By the way, no convergence analysis at such disaggregated level

[26] The working hours used by ISTAT and OECD at the national level is a better measure of working time in agriculture, but at more disaggregated level data are available only for AWU or for people employed in agriculture. AWU is preferred because it allows partially considering for part time work.

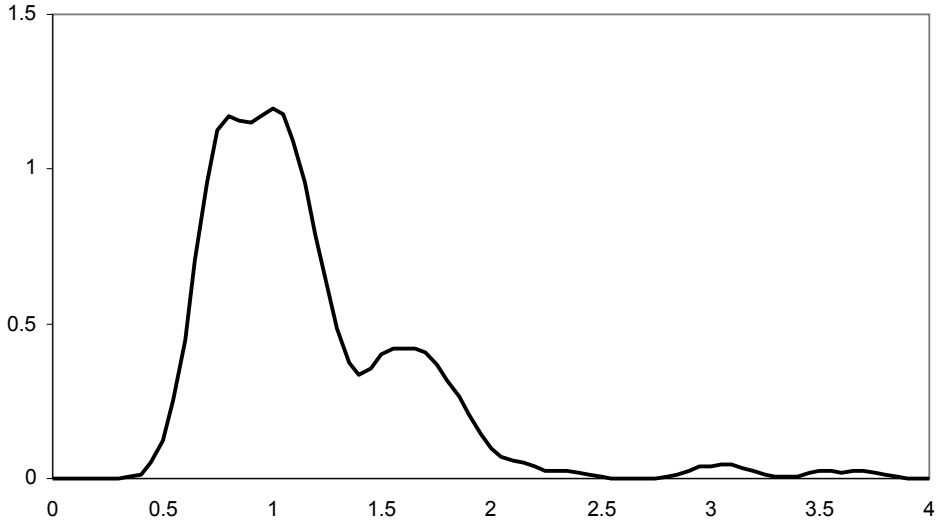
(NUTS 3) was provided for all the CEEc. The stochastic kernel applied to the study of the marginal density functions provides an image of the evolution of the distribution of the analyzed variable according to the statistical units composing the sample, in the time period considered. The convergence analysis on NUTS 3 regions belonging to all NMS shows a marginal density function that is clearly multi-modal in all the three time periods considered (1999, 2003, 2008).

Figure 2.4.1: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 1999



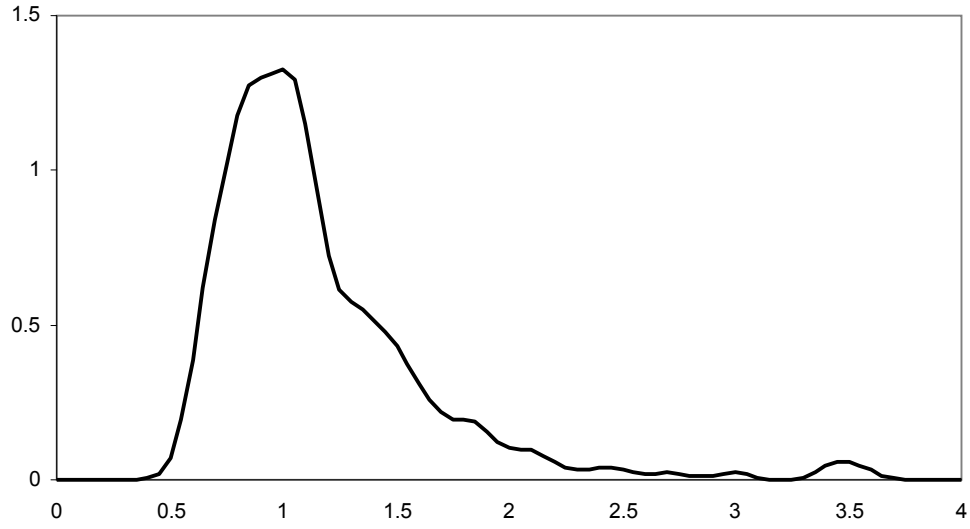
h= 0.164
Source: own elaborations on Eurostat data

Figure 2.4.2: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 2003



h= 0.166
Source: own elaborations on Eurostat data

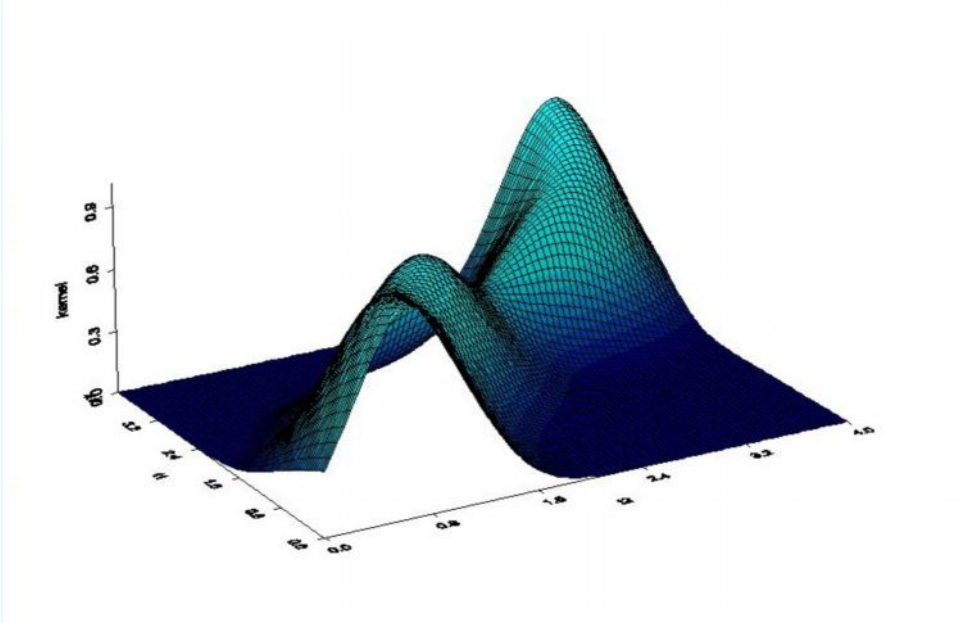
Figure 2.4.3: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 2008



h= 0.165
Source: own elaborations on Eurostat data

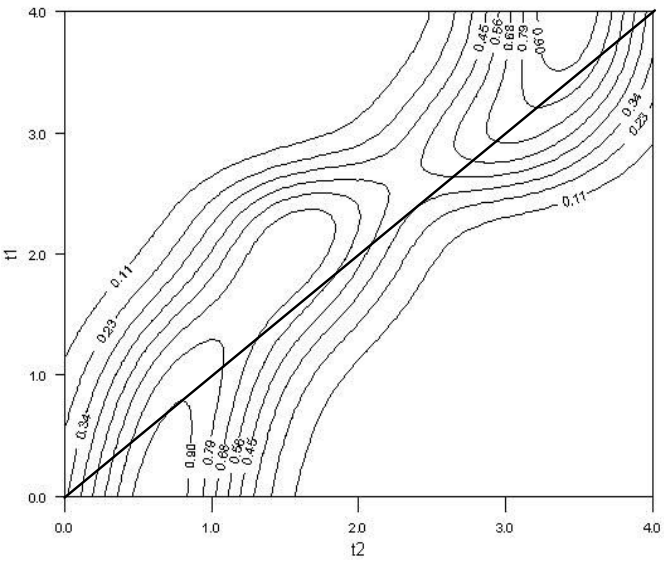
The marginal distribution in 1999 displays a main peak composed by two bumps, one below the NMS average and the other between 1 and 1.5. On the right side of the distribution, a long cue characterized by the presence of a bump around 1.7 times the average develops in other two small bumps, which include the best performing counties in NMS (at 2.9 and 3.7). In comparison with the previous analysis conducted just on the Hungarian counties, for the NMS (NUTS 3) the marginal distribution functions shows a lower relevance of the richer counties, on the right end of the distribution, on the general trend (very low intensity peaks corresponds to the highest modal values). In 2003, the main group grows both in intensity and in modal values (between 1.5 and 2 times over the average) following a general increase in p.c. GDP, while the distribution shows a tendency towards unimodality and asymmetry on the right end. Between 2003 and 2008 the distribution changes only slightly: in 2008 there are a main, high intensity peak characterized by important internal volatility (ranging from 0.5 till 3 times higher than the average), and a smaller peak on the right (3.5 times higher than the average).
The stochastic kernel and the contour plot (respectively Figure 2.4.4 and 2.4.5) display the presence of two groups of counties. The group down on the left, at lower income levels, presents a double process: a subgroup of counties, set around lower modal values, displays a weak clockwise rotation, while the second one is disposed around the main diagonal, showing persistency. These counties, which belong to the main peak displayed by the marginal distribution functions above, are experiencing different speed growth rates towards the NMS average p.c. GDP value: the poorer ones don't always move together, while the better off ones mainly remains on their average level. Instead the other group, composed by the richest counties, is characterized by a clear anti-clockwise rotation and it disposes parallel to *t1,* showing internal convergence around values which are three times higher than the average.

Figure 2.4.4: Stochastic kernel of p.c. GDP (PPS) in NMS (NUTS 3)



Source: own elaborations on Eurostat data.

Figure 2.4.5: Contours of p.c. GDP (PPS) in NMS (NUTS 3)



Source: own elaborations on Eurostat data

2.4.2 Country convergence versus sub-regional divergence in Hungary

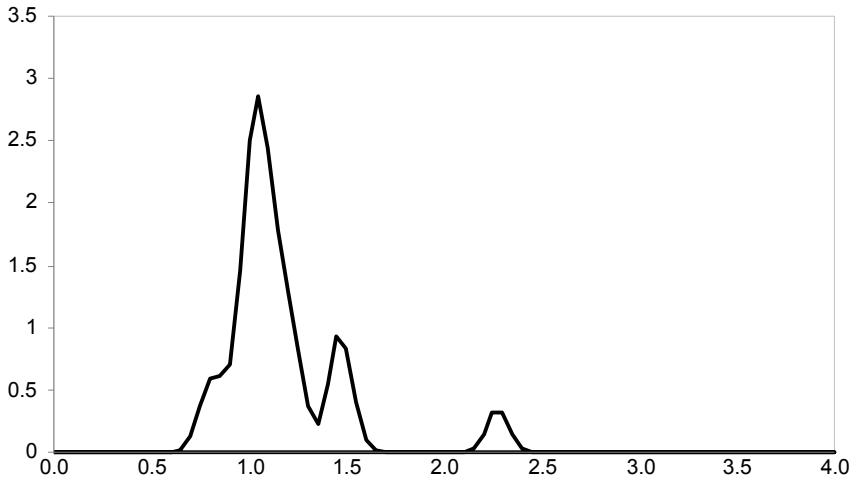
After performing a convergence analysis between the NMS, it is interesting to compare it, using the same methodology, with the convergence path followed by the counties which compose Hungary.

A very different situation emerges. The analysis of the marginal density functions are provided for the distribution of p.c. GDP (PPS) at the county level in Hungary[27] for the first year (1997), the middle year (2003) and for the last year (2008) of the time series analysed. From the marginal density distribution it is possible to observe the shape assumed by the variable in a fixed year, the trend followed by the statistical units, and if they polarize in one or more different groups. The marginal density functions provide a first evidence of the dynamics of the statistical units.

On axis *x,* the values of p.c. GDP on the national average[28] for the 20 Hungarian counties are displayed; on axis *y*, the estimates of the density function corresponding to different values assumed by the variable are shown.

The peak displayed on the graph represents a grouping of counties around a specific p.c. GDP value, and its height depends on the number of the units which belong to the group: if the peak is very concentrate around a single modal value of the axis *x*, then the counties composing it are very homogeneous. A tendency towards unimodality of the statistical units represents good internal cohesion[29]: perfect convergence occurs when the highest concentration is around a single point (all the counties display the same p.c. GDP level).

Figure 2.4.6: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 1997



h[30]= 0.172

Source: own elaborations on Eurostat data.

The marginal density function for p.c. GDP in 1997 evidences the presence of three peaks: the highest one is centred on the average value (1), the second one around a level

[27] The limited number of statistical units should be considered, when analyzing the intensity of the peaks.

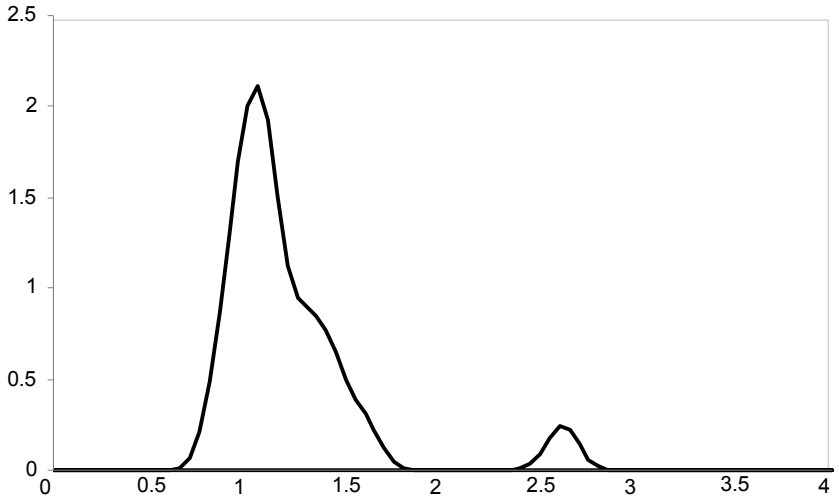
[28] Thus, a value equal to one represents the average value of the Country.

[29] At the opposite, multimodality represents polarization of counties in different groups.

[30] The *smoothing* parameter (or bandwidth) *h* has been computed as an average between the *h* proposed by *Silverman* $h = 0{,}9\,A(n)^{-1/5}$; where A is the minimum value obtained between the standard deviation and the first quartile divided for 1.34, and the *h* $\left[h = (\frac{4}{3n})^{1/5}\sigma\right]$ computed for a Gaussian estimate function.

50% higher than the average. The third, small and extreme peak sets around a modal level 2.3 times higher than the average. The first, high intensity peak is characterized by a relevant internal variability, ranging from values 50% lower than the average to values 40% above the average level. The other two peaks show lower intensity, because they are composed by fewer counties.
A second estimate of the marginal density function is provided for 2003. The situation changes a lot between 1997 and 2003. In 2003, the distribution shows a main peak characterized by high internal volatility, whose values range between 60% less and 70% more than the average. It is still possible to observe a small peak of counties on the right, ranging now from 2.5 and 2.7 times over the average level.

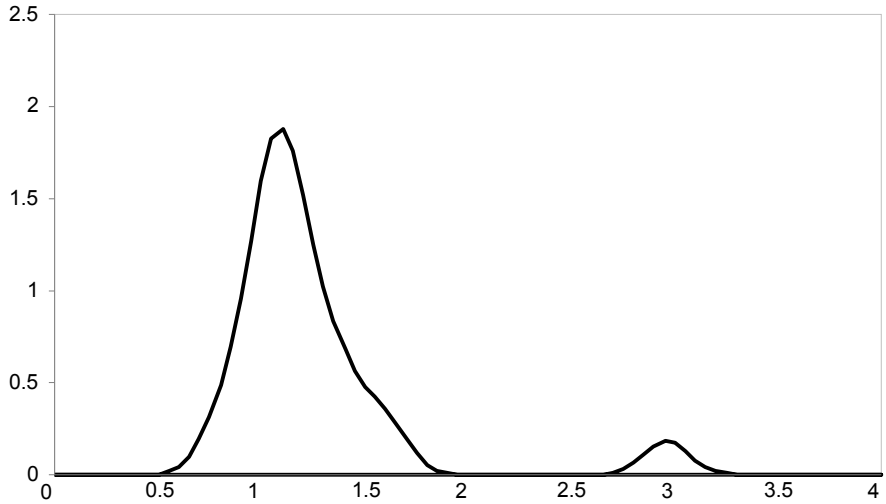
Figure 2.4.7: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 2003



h= 0.207
Source: own elaborations on Eurostat data

Between 1997 and 2003, the most of the counties increase their economic performance, and this result could be induced by the mutual contribution of the end of the transition period and the introduction of the EU pre-accession funds. From 2003 to 2008 no great changes take place (Figure 2.4.8): in fact, there is still a main peak, whose intensity decreases (smaller), while its modal value increases, ranging now from 0.5 to 1.9 times higher than the average. As a difference from the rest of the observations, the counties composing the peak on the right still improve their performance, stabilizing around a modal value 3 times higher than the average.

Figure 2.4.8: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 2008

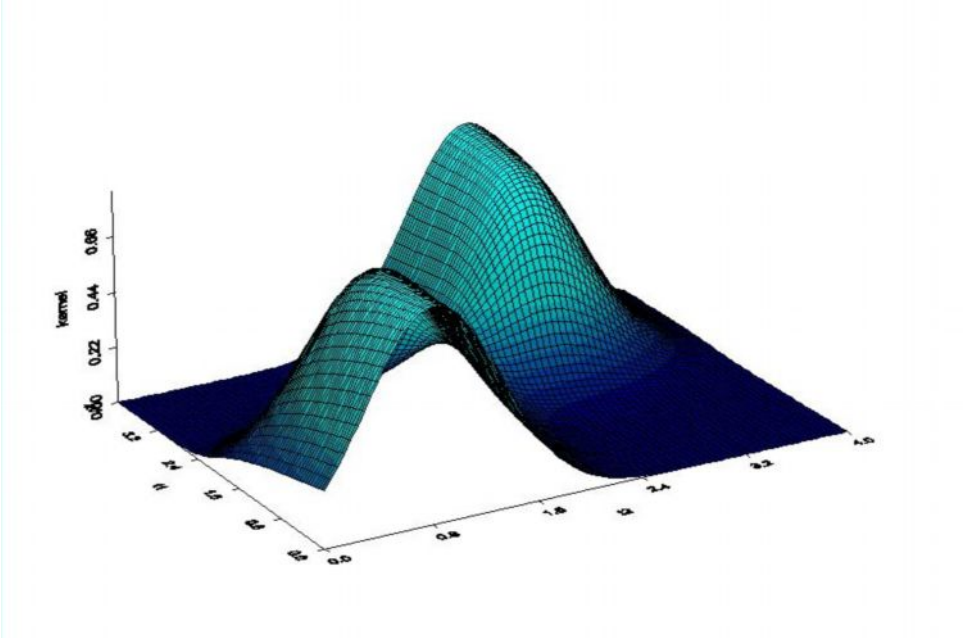


h= 0.243

Source: own elaborations on Eurostat data

The analysis of the stochastic kernel shows the evolution of p.c. GDP: two peaks emerges, which highlight a tendency towards homogeneity within the two groups (Figure 2.4.9)[31] and a relevant polarization between them.

Figure 2.4.9: Stochastic kernel of p.c. GDP (PPS) in Hungary (NUTS 3)



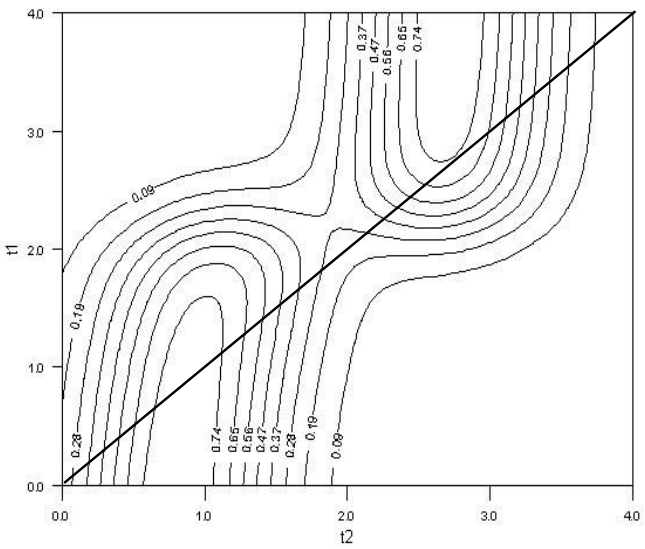
Source: own elaborations on Eurostat data

A clearer interpretation of this dynamics is provided by the contour plot (Figure 2.4.10). The two groups of counties dispose parallel to *t1*: in the long term they tend to

[31] The analyses are implemented with an algorithm in Gauss. Graphic outputs are obtained with the S-Plus software.

convergence within themselves, while assessing at different GDP levels (polarization). The first group of counties, down on the left, converges around the average value of the country, but shows a weak clockwise tendency. Instead, the second group, composed by the richest counties and disposed high on the right, sets around much higher values. Moreover, it shows a clear anti-clockwise rotation, and a relevant convergence trend.

Figure 2.4.10: Contours of p.c. GDP (PPS) in Hungary (NUTS 3)[32]



Source: own elaborations on Eurostat data

2.4.3 Evaluating the role of CAP introduction on the convergence path of the Hungarian counties

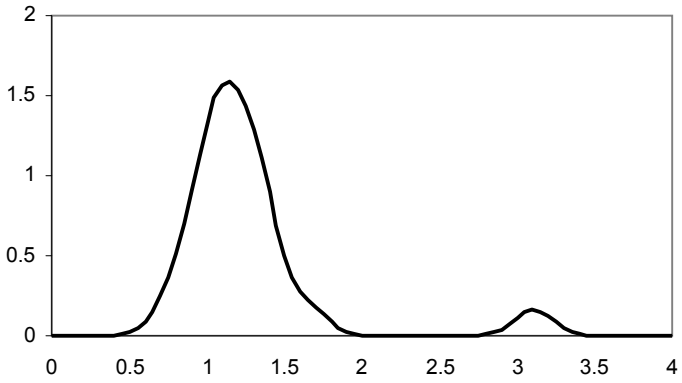
During the 2004 enlargement, the CAP introduction (in its policies, instruments and budget) in NMS was a debated issue in the EU. In fact, as the NMS were more agricultural (in terms of % agricultural land, and percentage of the sector on GDP), and their agricultural and rural areas were interested by important development delays, CAP was expected to play a relevant role for convergence.

After several years from the enlargement, we can analyze the role of CAP support on the growth and convergence path of the Hungarian counties.

An estimate of the distribution of p.c. GDP in the Hungarian counties conditioned to CAP payments (decoupled subsidies, SAPS and national top-up payments) is provided. The marginal density functions of p.c. GDP (PPS) for NUTS 3 units in 2004 (the year of the CAP introduction in NMS) and in 2008 (last year available) are very similar in shape and values (Figure 2.4.11 and 2.4.12).

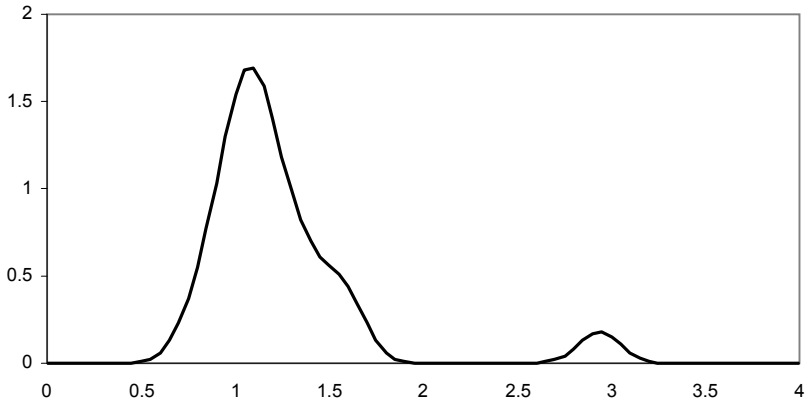
[32] The numbers report the highest concentration of statistical units around a mean value.

Figure 2.4.11: Marginal distribution of conditioned GDP in Hungary (NUTS 3) in 2004



h= 0.259
Source: own elaborations on Eurostat data

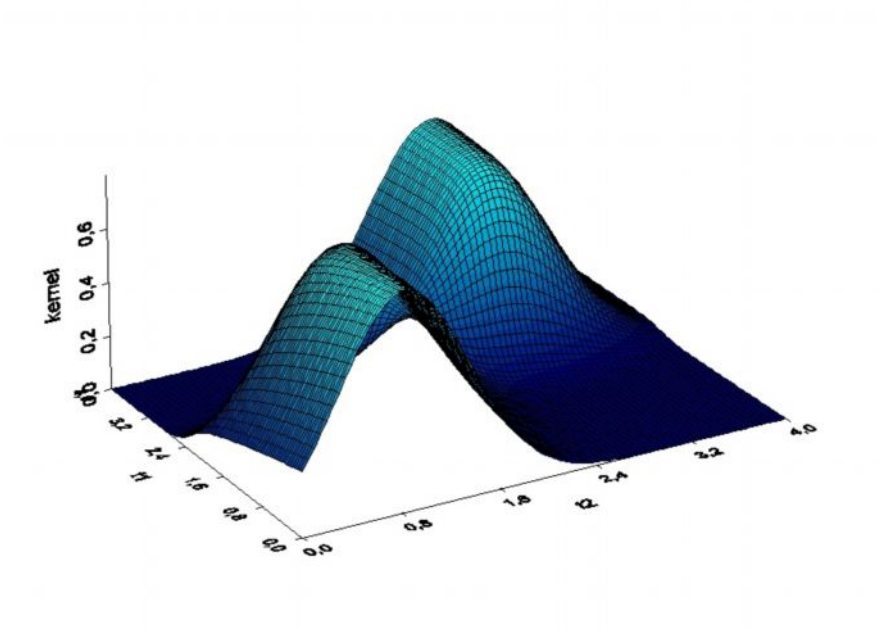
Figure 2.4.12: Marginal distribution of conditioned GDP in Hungary (NUTS 3) in 2008



h= 0.244
Source: own elaborations on Eurostat data

Moreover, the comparison with the distributions of the previous unconditioned non-parametric convergence analysis for Hungarian counties in 2003 and 2008 don't show relevant changes, neither in the shape of the distributions or in the values. The conditioned distribution in 2004 is unimodal: a main high intensity peak ranges between values 50% lower and 2 times higher than the average. A smaller peak can be found on the right, 3.2 times over the average. In 2008, the marginal distribution looks pretty similar, even if the intensity of the main peak increases, and the small peak on the right decreases its performance, around values three times higher than the average. The stochastic kernel (Figure 2.4.13) shows a similar situation to the unconditioned convergence analysis.

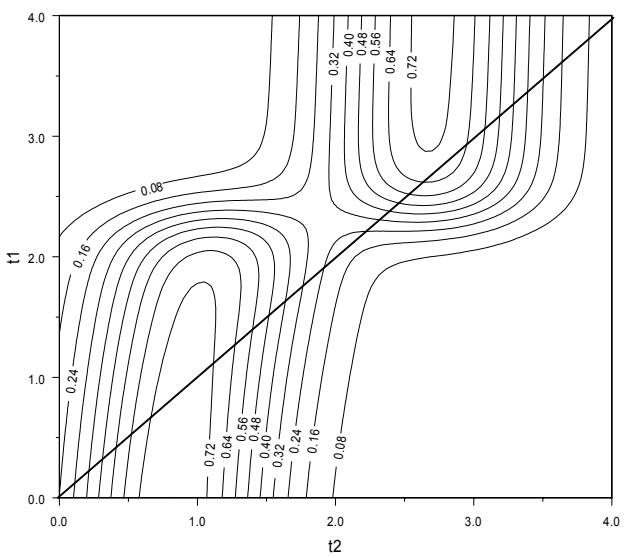
Figure 2.4.13: Stochastic kernel of p.c. GDP and conditioned in Hungary (NUTS 3)



Source: own elaborations on Eurostat data

The contour plots (Figure 2.4.14) still shows polarization in two groups, both aligned parallel to the axis *t1*, on different p.c. GDP levels. The poorer group (on the left) converges internally around the average value, while the richer one converges around values three times higher than the average.

Figure 2.4.14: Contours of conditioned GDP in Hungarian counties (NUTS 3)



Source: own elaborationss on Eurostat, FADN and MVH data.

A serious limit for the conditional convergence analysis was represented by the short time series of available data, and the low number of statistical units analyzed. Moreover,

the FADN data on the CAP support themselves are not fully representative of the farm reality in the EU-27. In fact the FADN, the European system of sample surveys, collects structural and accountancy data relating to farms, with the aim to monitor the income and business activities of agricultural holdings, and to evaluate the impacts of the CAP. By the way, its sample is only composed by farms which exceed the minimum economic size of 1 ESU (1,200 Euros): this threshold was chosen to catch the most relevant part of the economic activity, but it fails to assess the structural and economic situation of smaller, and poorer, farming realities, which are not reached by public support. Nowadays, the FADN covers a sample of 39% farms (78 000 holdings) in the EU-27, disaggregated at the regional level, and it represents the 95% of direct payments expenditures but just 50% of the beneficiaries.

The comparison between the conditioned and unconditioned analysis shows that, despite weak improvements of the poorest counties, the CAP payments were not able to influence the convergence of lagging behind areas, which are mostly mainly agricultural and rural (7,4% of employment in the primary sector). This result confirms the issues which were raised, since the accession period, by academics and policy makers from NMS about the lack of targeting and efficiency of CAP funds for the new MS. As Gorton et al. (2009), Csáki et al. (2010) evidenced, the NMS had to adapt to a CAP structure and function designed to fit the needs of the EU-15, while agricultural and rural areas in EU-10 had to face serious structural and productivity challenges.

In Hungary, the level of decoupled payment increased in every county: decoupled payments more than doubled in absolute levels, ranging between +102% in Dél-Dunántúl and +178% in Közép-Dunántúl (Table 2.4.1), and their share on total subsidies (Table 2.4.2) increased everywhere, between 47% (Észak-Magyarország) and 89% (Dél-Dunántúl). By the way, the low nominal level of decoupled payments in comparison with the EU-15 average and the lower share directed to the worst performing counties (i.e. Észak-Magyarország, Dél-Alföld) could have contributed to the limited role played by the CAP for the convergence.

Table 2.4.1: Evolution of decoupled payments per farm in Hungary (EUR), 2004-2009

Region	2004	2005	2006	2007	2008	2009	var 09/04 %
Közép-Magyarország	3,781	4,203	5,438	5,149	7,321	7,697	104
Közép-Dunántúl	5,227	6,711	7,701	11,276	13,342	14,509	178
Nyugat-Dunántúl	4,881	5,435	6,904	7,983	9,600	11,258	131
Dél-Dunántúl	5,184	5,766	6,702	7,140	10,625	10,457	102
Észak-Magyarország	3,179	4,197	5,910	6,726	7,004	8,150	156
Észak-Alföld	2,788	3,397	4,362	4,582	5,553	6,797	144
Dél-Alföld	2,525	2,439	3,145	3,624	4,398	5,574	121

Source: own elaborations on FADN data

Table 2.4.2: Rate of decoupled payments on total support to farms in Hungary (EUR), 2004-2009

Region	2004	2005	2006	2007	2008	2009	Var 09/04 %
Közép-Magyarország	36.5	39.0	45.7	44.7	47.7	54.6	50
Közép-Dunántúl	32.8	35.8	41.3	35.7	38.4	52.1	59
Nyugat-Dunántúl	32.5	32.6	42.3	43.7	47.2	59.5	83
Dél-Dunántúl	30.4	28.1	36.2	39.3	41.3	57.6	89
Észak-Magyarország	43.1	37.1	46.4	45.7	53.0	63.3	47
Észak-Alföld	35.9	37.5	44.0	40.5	49.7	57.1	59
Dél-Alföld	36.7	37.5	43.7	43.6	49.4	57.9	58

Source: own elaborations on FADN data

The lack of targeting emerges from the correlation analysis of the distribution of the SAPS funds to successful applications[33]. In fact, looking at the applications for public (SAPS and TOPUP) payments within the Agricultural and Rural Development Operative Program (AVOP) in 2005[34], it emerges clearly that land size and the area of provenience affects both the quality and quantity of demands. As a difference from the EU-15, in Hungary he land size limit for being eligible to SAPS payments was set at 0.3 (instead than 1 ha). Farmers with 0.3 – 1 hectare presented the lowest number of applications and the most was refused by managing authorities. By the way, also in this category there are better performing Counties, as Somogy, where 90% of applications were approved, although just 9 were presented. At the opposite, several applications came from Jász-Nagykun-Szolnok and Heves but they did not succeed. The number of presented applications increases with the average land size, and reached the most for the land size class 1-5 ha. Bigger farm size also influences the quality of applications: the bigger the farm, the most successful the applications. The most of applications for an area lower than 5 ha came from one of the most backward and rural areas, Szabolcs-Szatmár-Bereg. Instead, for farm size over 100 ha, the most came from better off agricultural areas, as Fejér and Bács-Kiskun, till Pest county for over 1,000 ha.

Following the previous findings from Katona Kovács (2007), which found no significant correlations between SAPS payments, p.c. GDP and unemployment rate, and the results from Elek et al. (2008), which evidenced a negative correlation with farmers' age and education, a correlation analysis between the number of applications received, the payments (TOPUP + SAPS), farmers' age, average farm size and farm location in less favoured areas (LFA), is provided at the county level. We found no significant correlation between applications (or payments) and farms size and farm location in LFA, while we recorded significant - but negative - correlation between applications received, payments and farmers' age (over 55 years old). Therefore, the younger is the farmer, the higher the number of successful applications and payments for the county.

[33] This analysis and the comment to the results was performed together with PhD candidate Francesco Pagliacci and presented to the 122nd EAAE Seminar hold in Ancona (It) on February 2011.

[34] The only public data available refers to 2005. Source: Hungarian Agricultural and Rural Development Agency.

2.4.4 Agricultural policy reforms and agricultural labour productivity in Hungary: a successful story?

The pre-accession PHARE and SAPARD instruments before, and the direct support to farmers income after the EU membership, were aimed at increasing agricultural productivity and competitiveness, in order to solve the structural bottlenecks which remained from the transition process in lagging behind areas. In fact, since its introduction in the NMS the EU support to agriculture was mainly composed by investments for the modernization of the agri-food sector at the farm level, while less attention was devoted to rural development and the related poverty issue. Therefore, it is important to assess whether the preference accorded by the EC to direct payments for ensuring "a fair standard of living for the agricultural community" (CEC, 2002), and the support to a family farming model of agriculture, reached its goal looking at the indicator which was considered at the base of the performance of the sector: agricultural labour productivity[35].

The awaited convergence in productivity performance didn't take place, especially in the most agricultural and rural areas, where (official) employment in agriculture is 8% in 2010 (Dél-Dunántúl), increasing since 2008 by 18.8% (Table 2.4.3), and the role of agriculture on GDP reaches a double digit (11% in Dél-Alföld, in 2008, Table 2.4.4). These values are much lower for more regions more active in the service sector, as Közép-Magyarország (where Budapest is located), and for the North-Western border regions, which were able to attract FDI and to renovate the industrial production.

Table 2.4.3: Employment in agriculture 2008-2010 (% of the total)

	2008	2009	2010	2010/08 %
Hungary	4.3	4.6	4.5	3.4
Közép-Magyarország	1.0	1.0	1.0	5.7
Közép-Dunántúl	4.3	4.3	4.2	-3.0
Nyugat-Dunántúl	4.0	5.4	4.7	17.3
Dél-Dunántúl	6.6	8.0	7.9	18.8
Észak-Magyarország	3.7	3.5	3.8	2.5
Észak-Alföld	6.7	6.9	6.8	1.1
Dél -Alföld	9.5	9.8	8.9	-5.9

Source: own elaborations on Eurostat data

Table 2.4.4: GVA produced by the agricultural sector (% of the total)

	2004	2005	2006	2007	2008	2008/04 %
Hungary	4.81	4.20	4.00	3.97	4.25	-11.72
Közép-Magyarország	1.02	0.74	0.69	0.68	0.77	-24.65
Közép-Dunántúl	4.79	4.69	4.64	4.75	4.85	1.32
Nyugat-Dunántúl	5.85	5.30	4.65	5.18	5.57	-4.81
Dél-Dunántúl	9.33	9.39	9.53	8.45	8.85	-5.13
Alföld és Észak	9.47	8.24	8.12	8.11	8.86	-6.42

[35] Calculated as gross agricultural value added/ agricultural working unit.

Észak-Alföld	9.33	8.24	8.25	8.47	9.25	-0.87
Dél-Alföld	11.76	11.36	11.31	11.22	11.84	0.69

Source: own elaborations on Eurostat data

The results of the σ-convergence analysis performed on agricultural labour productivity (on which the CAP support was supposed to have a positive impact) in Hungary (NUTS 3 level) from 2000 till 2007, which shows divergence in the productivity of the twenty Hungarian counties (Figure 2.4.15).

In fact, $\pi > 1$ (1.157) thus T_3 is N.D., while T_2 is higher than the critical value[36] (22.521).

There is a positive divergence (Table 2.4.5): all the counties improve their performance, but among the lagging behind ones just Komárom-Esztergom and Vas are growing faster than the most productive one, Budapest, while the other counties form a group at lower levels. The average growth rate of labour productivity ranged between 2000 and 2007 reached 19%, with the highest positive peak recorded by the county of Vas (+25%), followed by Veszprém (+24%), and the lowest by Budapest (+14%). Thus, from the analysis performed in this chapter, it emerges the Hungarian counties were able to exploit the CAP and EU funds provided by the EU membership very differently: counties which were able to successfully apply for the CAP payments and actively use them could better develop their agricultural sector, promoting productivity. Although the several limits linked to data availability (time series, disaggregated payments, number of counties), this analysis would provide clearer and more comprehensive results if data on structural and cohesion funds provided after the EU enlargement to Hungarian counties were available.

Table 2.4.5: Critical values for σ-convergence test (agricultural labour productivity)

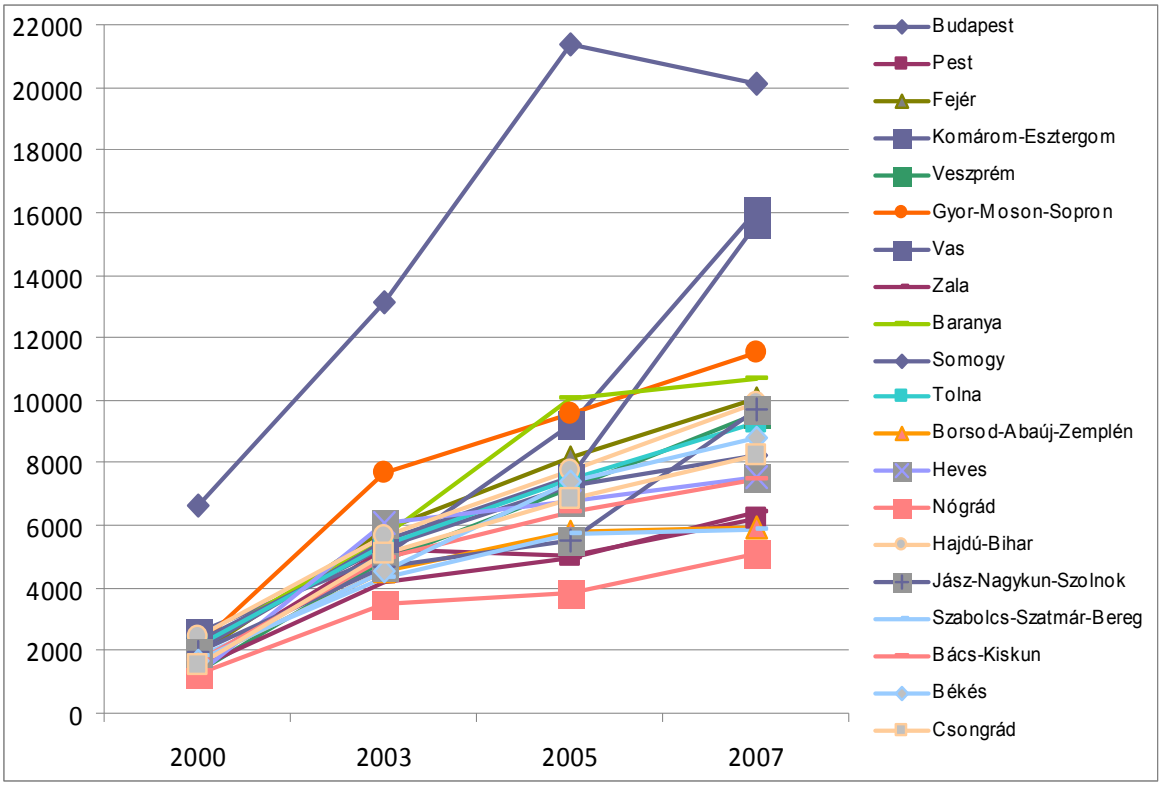
Convergence	Divergence
$\hat{\pi}<1$	$\hat{\pi}>1$
T1> 2.09	
T2>3.84	T2>3.84
T3>1.645	T3 N.D.
with α=0.05	with α=0.05

Source: own elaborations

The overall increase in agricultural labour productivity evidenced by the analysis is mainly due to the declining agricultural labour (in AWU), which decreased by 79% between 2003 and 2007, moving from 582 000 to 459 000 units (Csáki, 2009), while the NMS average agricultural labour decreased by 85% in the same period, moving from 710 100 to 603 500 AWU.

[36] α= 0.05

Figure 2.4.15: Agricultural labour productivity in the Hungarian counties, 2000-2007.



Source: own elaborations on Eurostat data

In conclusion, the results of the non-parametric convergence analysis (stochastic kernel) on the 20 Hungarian countries between 1997 and 2008 show clear polarization: a small group of counties headed by Budapest grows fast, while the other one, composed by the most of the mainly rural and less developed counties tend to converge among themselves at lower income levels, confirming previous descriptive analysis (Csáki et al., 2010). The marginal distribution functions show a tendency of the high intensity peak, composed by lower income counties, to move towards the same modal value between 1997 and 2003, while this trend is less evident between 2004 and 2008.

Moreover, the CAP introduction in Hungary (NUTS 3 level) was not targeted to the most agricultural and rural counties: in fact, the marginal distribution of p.c. GDP (PPS) conditioned to direct payments, is very similar to the unconditioned ones for the same years (2004 and 2008). Therefore, it is not a surprise that convergence in agricultural labour productivity among the Hungarian counties between 2000 and 2007, calculated with a parametric methodology (σ-convergence) due to the lack of time series, didn't occur, with Budapest (an urban county) recording the best values, while the lowest growth in agricultural labour productivity is recorded by the most lagging behind and rural counties (Nógrád, Heves, Borsod).

As a difference from the Hungary, the convergence analysis applied to the NMS at the NUTS 3 level evidences the presence of multimodality: convergence realizes between the most of the statistical units around the average NMS level of p.c. GDP (PPS), while

just few areas (the capital towns) set on much higher p.c. income levels, comparable with the EU-27 average.

Finally, we must underline the preliminary explorative role of these analyses, which have been influenced (in the methodologies and time period chosen) by the persisting limitations of official statistics, especially at disaggregated levels.

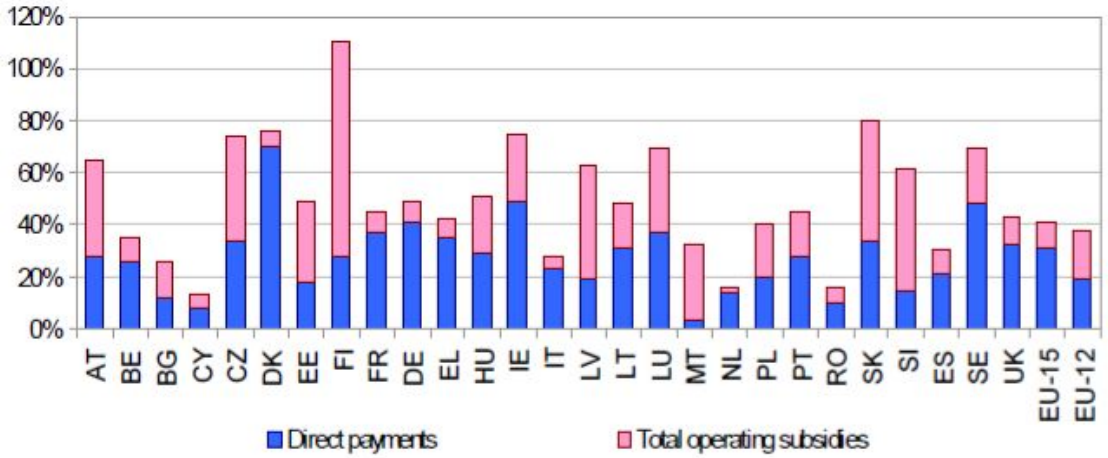
CHAPTER 3

CAP REFORMS AT A GLANCE

3.1 CAP support, farmers' income and distribution inequality: more than a question of measurement

One of the main CAP objectives, the achievement of "a fair standard of living for the agricultural community", was already stated in the 1957 Treaty of Rome, before the CAP launch in 1962. During the several reforms occurred from the 1980s, the preservation of farmers' income was a main blocking issue: the introduction of the decoupled support (based on the Single Payment Scheme, SPS) was considered by farmers and producers organizations as a limited compensation. The slow but continuous decrease of the CAP budget on the total EU share, and the EU enlargement to 10 NMS where agriculture and rural areas still played a relevant role, turned the attention on the relapses on farmers' income. Direct payments, decoupled from production, were introduced to solve the distortions caused by market support and to make farmers more market oriented in their production choices. They became the main support instrument within the European Agricultural Guarantee Fund (EAGF): in 2011, up to a total of EUR 56,4 billion (in payments appropriation), EUR 42,9 billion went for direct aids and market related expenditures, while the remaining 13,5 for Rural development, environment & fisheries. Direct aids and market expenditures represented 30.2% of the EU budget, while Rural development 11.1%. There are several policy instruments which impact the economic situation of farmers but, as showed by Figure 3.1.1, direct payments are often the main one.

Figure 3.1.1: Direct payments and total operating subsidies as a percentage of agricultural income (avg. 2007-2009)



Source: FADN, 2011

The share of direct payments on the total is (average 2007-2009) was considerable higher in the EU-15 (more than 30%) than in EU-12 (20%); they represented the most of subsidies in Denmark, Netherlands and Italy, while they share the lowest in Finland, Slovenia and Latvia.

After the 2004 (and 2007) enlargement, a main issue emerged in relation to direct payments: the distribution inequality between Members States due to the reference criteria chosen. The difference in direct payments between NMS and the EU-15 reported in Table 3.1.1 is the result of hard debate among previous EU members (discussion from which the new comers were excluded) in the years before the 2004 enlargement: the initial position based on the exclusion of NMS from direct payments, EU-15 agreed for a partial phasing in of payments from 2004 to 2013. By the way, even in 2013 a relevant differential in payments per hectare will persist, in favour of already agricultural better off countries (for structural conditions, investments, productivity).

For the first complete programming period (2007-2013), the EU-10[37] could opt for the Single Area Payment Scheme (SAPS), and their governments could pay farmers a Complementary National Direct Payment (CNDP) for those sectors which were already supported by the CAP[38.] From the date of the EU accession, three types of support are available for producers: low market support; single area payment scheme (SAPS); rural development support and top-up payments (paid from the national budget as an integration of SAPS, till 30%).The maximum amount of direct area payments, based on reference yield[39], under the Single Area Payment Scheme (SAPS) and Direct Payments by National Contribution (CNDP) was around EUR 298/ha in 2010 (an upward trend has begun since these two countries joined the EU in 2004) and it will be fixed at this level until the end of the programming period. Thus, in 2013 the average direct payment for EU-10 will be EUR 250/ha, and EUR 300/ha for the EU-15 (Table 3.1.1).

Table 3.1.1: Direct payment granted per hectare, in EUR/ha (SAPS+CNDP)

Country	Reference yield	2004	2006	2008	2010	2011-13
Hungary	4.73	149.5	174.3	238.4	298	298
Poland	3.00	104	122.9	151.2	189	189
EU-10	4.00*	138.6	163.8	201.6	252	252
EU-15	4.77	300.5	300.5	300.5	300.5	300.5
EU-10/15, %	83.8	46.1	54.5	67.1	83.8	83.8

Source: EC DGAgri, *Popp-Udovecz, 2007

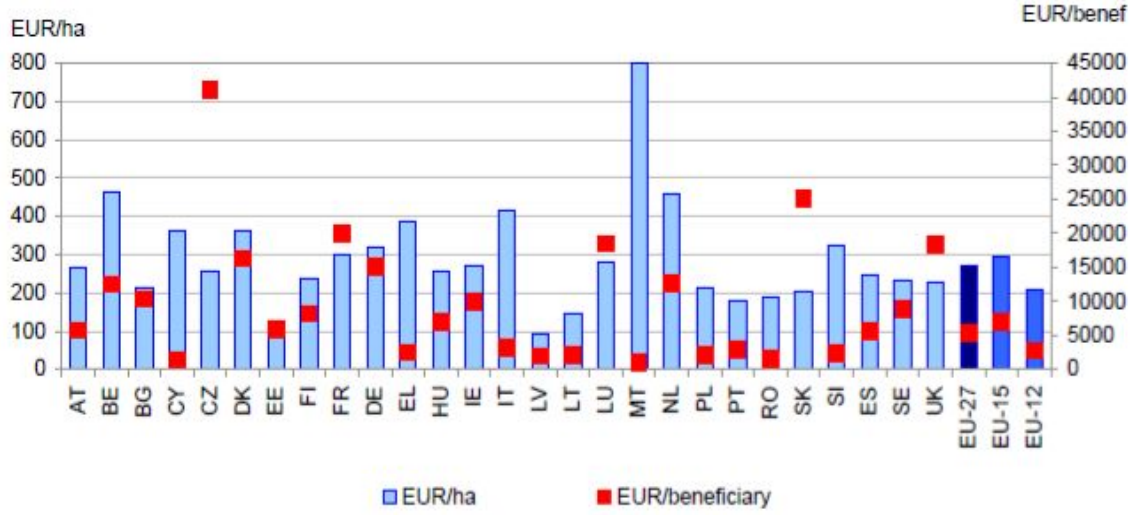
[37] EU-10 includes all the countries which joined the EU in 2004. EU-12 includes also Bulgaria and Romania, which joined the EU in 2007.

[38] Based on this rule, Hungary has created 11 different "topup" envelops for the year 2005.

[39] Average value of the yield recorded in 1995-1999. Therefore, payment per hectare will be lower for the NMS than in the EU-15 because the transition process resulted in lower yields.

Farmers from the NMS are poorer in comparison to their colleagues from the EU-15 (for simplification my comparison is based on averages), but they have to meet the same EU standards and obligations (leaving out some small exceptions).
The gap between the EU-15 and the EU-12 is even bigger (in average EUR 300/ha and EUR 200/ha respectively), as showed by Figure 3.1.2 where it is also possible to read the differences in the distribution of direct support both between and within the Member States. The highest allocation in EUR/ha in 2013 will occur in the Netherlands, Belgium and Italy (Malta being an outlier due to the very limited size of arable land), but the highest inequality among the beneficiaries within Member States will take place in Czech Republic (more than EUR 40,000/beneficiary) and in Slovakia (more than EUR 25,000/beneficiary). Moreover, within the same country direct payments allocation vary according to the region (NUTS 3) and structural characteristics, as evidenced by the analysis of SAPS applications provided in paragraph 2.4.3.

Figure 3.1.2: Average direct payments per beneficiary and per hectare in 2013[40]



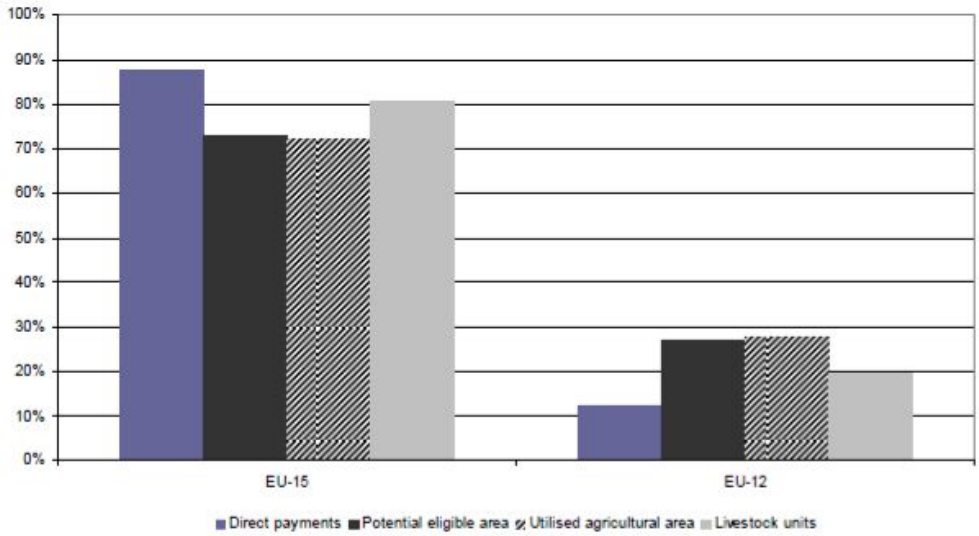
Source: DG Agri

Thus, in the NMS the CAP introduction was conceived mainly as a matter of inequality, and few months after the enlargement, farmers' protests exploded. And the numbers support them: Figure 3.1.3 shows the difference in amount of decoupled payments per ha in the EU-15 and the NMS, because the rate of payment each farmer was eligible for was based on previous support receipts (linked to the individual farmer or regional productivity). As explained in Chapter 1, at the time of accession the NMS still presented development delays linked to the unfinished transition process, especially in agriculture, which constituted the main activity of the poorer areas, and was mainly characterized by low productivity, due to parcelization, lack of investments and spread subsistence. Thus, the choice to use production level based on historical or regional performance as reference was much penalizing for the NMS. The situation is not going

[40] This figure is based on the national envelopes of Member States after full phasing-in of direct payments in the EU-12 and the number of potentially eligible hectares in IACS for 2008.

to change even in the next programming period: in fact, calculations based on EC proposals and eligible hectares in 2009 show that since 2017 EU-15 farmers shall receive EUR 293/ha, and the NMS shall receive only EUR 218/ha. This distribution goes not only against the EU Treaty and the CAP guidelines, but it is also in contradiction with the function of direct payments (income support), which is highlighted by the EC as justification of their existence. If they were supposed to cover such a role, the higher direct payments per hectare should be directed to poorer farmers in lagging behind countries (the NMS), while the maintenance of the status quo favours the EU-15.The data on the distribution of direct payments in 2010 per Member State published by DG Agri in 2012 confirm it: the EU-15 farmers received quite 90% of all direct payments, owned more than 70% of the potential eligible area and utilized agricultural area, and the 80% of livestock units in the EU-27 (Figure 3.1.3). This imbalance in transfers could occur because, since Agenda 2000, the future NMS were policy takers: they couldn't influence the reforms agenda, given their low bargaining power. Thus, the existing EU legislative corpus, which reflected the evolution of the needs and priorities of the EU-15 during the years, was introduced in the NMS though emulation (Gorton et al, 2009). The imbalance doesn't realize only in the different amounts paid to the two groups of countries, but also in the budget differences between the two CAP pillars: while in the last decade the EC officially pointed the policy attention on RD in order to promote multifunctional agricultural and rural areas, the most of measures remains farms-centric. Since the launch of the SAPARD pre-accession program, aimed at helping the accession countries with the CAP requirements of the *Acquis Communitaire*, quite 70% of the total EU contribution was directed to three common measures: processing and marketing of agricultural and fisheries products, investments in agricultural holdings and development of rural infrastructures.

Figure 3.1.3: Distribution of direct payments*, potential eligible area**, utilized agricultural area and livestock units***, EU-27=100%

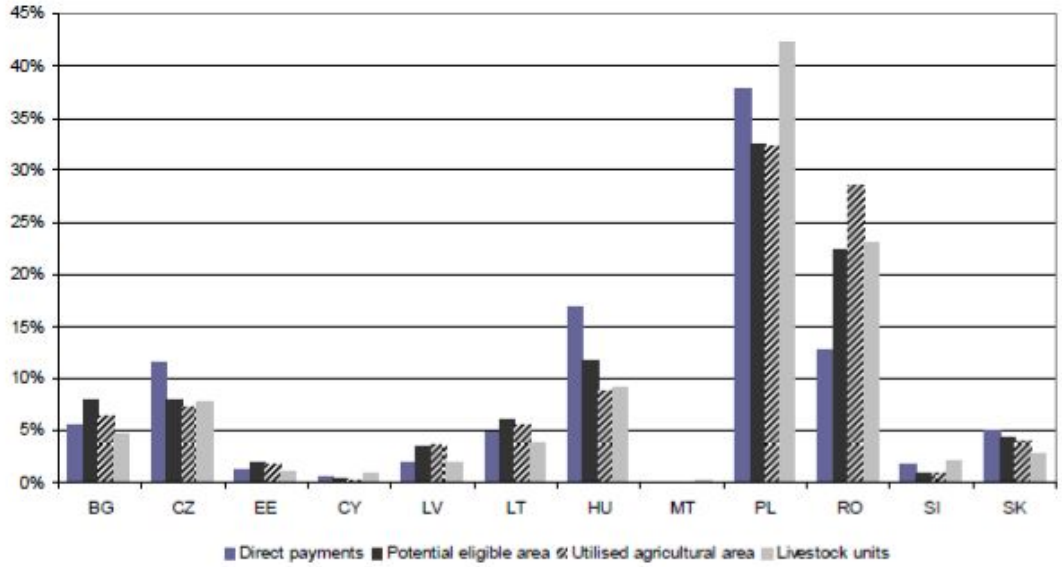


* 2010 Financial Year

** IACS 2009
*** 2007 Farm Structure Survey
Source: DG Agri

Among the EU-15, the better off countries in 2010 were France, Germany and Spain, respectively with quite 24%, 16% and 15% of direct payments (EU-15=100%), while in the EU-12 the most of direct payments (EU-12=100%) went to Poland and Hungary, respectively with around 38% and 17% (Figure 3.1.4). Poland detained also the highest number of livestock units (43%), and the highest potential eligible area and utilized agricultural area, followed by Romania and Hungary.

Figure 3.1.4: Distribution of direct payments*, potential eligible area**, utilized agricultural area and livestock units in EU-12***, EU-12=100%.



* 2010 Financial Year
** IACS 2009
*** 2007 Farm Structure Survey
Source: DG Agri

Moreover, in 2010 in the EU-15 there were the most of beneficiaries, 4,694 versus 3,143 in the EU-12 (Table 3.1.2): they received in average EUR 7,487 (83% of the total), quite 5 times more than their counterparts in the EU-12 (EUR 1,552). Quite the total of beneficiaries (96%) in the EU-12 received less than EUR 5,000, while this average stops at 71% in the EU-15, where they represented only 12% of direct payments (40% in the EU-12). Thus, direct payments are both unequally distributed between the EU-15 and the EU-12 (in favour of the former), and within the EU-15, where 79% of farms gets 88% of direct payments.

Table 3.1.2: Number of beneficiaries and average amount, 2010

2010		EU-12	EU-15
number of beneficiaries (.000)		3,143	4,694
average amount (EUR/beneficiary)		1,552	7,487
receiving EUR 5,000 or less	% beneficiaries	96%	71%
	% direct payments	40%	12%

Source: DG Agri

According to the last DG Agri report (2012), in 2010 in the EU-15, 80% of beneficiaries received between 14% (Portugal) and 55% (Luxemburg) of direct payments. At the same time, in the EU-12 80% of beneficiaries received between 4% (Slovakia) and 37% (Slovenia) of direct payments. Being the support mainly based on area and livestock according to historical reference yields, the distribution of direct payments between beneficiaries in the two groups reflects the differences in farm size (smaller in the EU-12) and in farm structures (most of livestock units are in the EU-15).

In Hungary, the beneficiaries of direct payments were 182 830 (2.3% of the EU-27) for a total amount of EUR 821,206 000 (on a total EU-27 amount of 39,685,106 000), thus an average amount of EUR 4,491 per farm. 87.3% of beneficiaries received less than EUR 5,000, which is limit that in the legislative CAP proposal after 2013 identifies an active farmer. These farmers received 21% of total direct payments and the remaining 79% circa goes to 12% of beneficiaries, which will be able to be considered active farmers. Farms receiving more than EUR 150,000, which will be interested by capping after 2013, are 0.4% and will get 29.4% of direct payments. 0.15% of beneficiary farms received more than EUR 300,000 (18.4% of total direct payments): according to the new regulations they will be excluded by direct payments and their quota will be moved to pillar II. For a brief comparison, in the EU-27 81.1% of farmers received less than EUR 5,000, which represent 15% of expenditures for direct payments. 0.2% of farmers received more than EUR 150,000, and 0.05% more than EUR 300,000, getting respectively 11% and 5.6% of direct payments. In Hungary more farms receive less than EUR 5,000 in comparison with the EU-27, but at the same time the share of farms receiving more than EUR 150,000 is higher than the EU-27 average, highlighting a clear polarization of the distribution of direct payments.

3.2 Understanding the poverty issue in agricultural and rural areas

When introduced in 1962, the CAP was endowed with several objectives (art. 39 of the Treaty of Rome):

- to provide enough supply of food at reasonable prices for consumers (to overcome the food shortages of the 1950s, achieving self-sufficiency);
- to increase productivity, especially the labour contribution, though support to mechanization and use of factors of production;
- to stabilize markets;
- to ensure fair standard of living for farmers.

In fact, the development path which characterized the six EU founding members (Belgium, France, Germany, Italy, Luxembourg and the Netherlands) was mainly driven by industrialization, while agricultural areas were lagging behind. Moreover, farmers were mainly affected by poverty, and the CAP introduction was expected to contribute to convergence in income between urban and rural households, supporting incomes from agricultural activities. Thus, the original CAP covered both economic and social objectives.

During the years, the CAP has slightly modified its goals, including also public health (Article168 (1)), consumer protection (Article169 (2)), economic, social and territorial cohesion (Article175) and environmental protection (Articles191and 192(3)). Moreover, it faced the relevant socio-economic structural changes occurred in the agricultural and rural areas, and at the several EU enlargements which led the EU to include now 27 MS. Being the initial conditions notably changed, many voices advocates reforms, both in the CAP objectives (in order to better answer the current challenges, i.e. climate change and food safety), and in the amount of funds dedicated, in percentage of the EU budget and in nominal terms. In 2012 the CAP costs about 57 billion Euros per year, representing more than 40% of the total budget, or 0.5% of GDP in the EU, but the CAP budget in percentage of the EU total declined progressively during the last two decades, since its peak in 1988 (70% of the EU budget).

Is the money spent for CAP every year effective in creating value added for the poor agricultural population? And which are the characteristics of the protagonists agricultural poverty, a feature stressed by the EC (EC, 2010) but still widely undefined?

A clear definition of the matters of discussion has been never provided. In fact, even if we dispose of several data about agriculture in the EU (e.g. the EU aggregate Economics Accounts for Agriculture provided by Eurostat, the FADN/RICA data at farm level), it is not possible to address clearly who forms the agricultural community, what should be a fair living standard, and who are the poor farmers in the EU. Therefore, it should be a small surprise that the CAP is highly inefficient at targeting (OECD, 2011) the areas and the farmers most in need, without promoting farm productivity and performance. In particular, two issues are very pressing: the introduction of a system for measuring the incomes of farm households, and to state the dimensions of inequality of payments distribution.

As for incomes, it has been evidenced (Hill, 2010) that there is no shortage of measurements of the income from agricultural activities (the production of goods to be agricultural), but they are not able to address the level of the income of farm households and its change. At the same time, little information is available on the whole income actually received by farmers, also due to the limited possibility to access the regional data about CAP payments[41].

Two main approaches are used to analyze farm income:

[41] It is worthy to note that several statistics, also related to the CAP payments, are provided at the Country level, but much less information is available at the disaggregated level.

- In the EU, Eurostat provides the activity accounts for agriculture: through the aggregate Economics Accounts (which provide the net value added for Member State), and the FADN/RICA micro data at farm level, it accounts for all agricultural production, but fails to capture all non-agricultural activities non strictly related to production.
- The accounts for institutional units which give information on households self-employed in farm businesses. They include important information about income from social transfers, extra agricultural activities, other part-time or self-employment, property incomes, but present the problem of deciding which are the mainly agricultural households[42].

Although the important limits evidenced, the EU is still using these approaches because they are easier to measure (it is easier to assume that farmers and their families are mainly/just engaged in agriculture); because they don't violate the internal political equilibrium and don't go against administrators and politicians' interests (several political pressures prevented FADN to include extra-agricultural income related questions in the micro-surveys); because of the low data quality and limited availability (UNECE 2005; WYE-FAO, 2007).

In the late 1980s Eurostat started working at a project, the Total Income of the Agricultural Households, aimed at building up a set of accounts for agricultural households by disaggregating each households sector account in the Member States. Data were diffused untill 1992 but later on the project was abandoned because of the lack of interest showed by the EU-15.

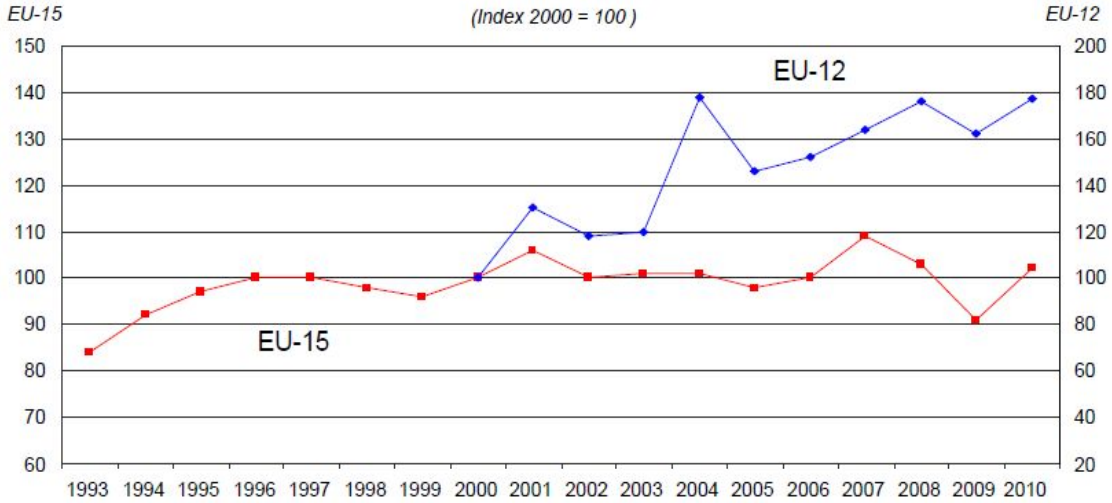
Lately, the OECD was working on agricultural household income information (OECD, 2005), as also the FAO (Wye Handbook, 2007), but progresses stopped at the EU level, and the European Court of Auditors stated that there is no satisfactory information to decide if the CAP objective of achieving a fair standard of living for the agricultural community was met.

In the EU, agricultural income is as measured as real factor income per full-time worker (annual working unit, or AWU). Latest analysis provided by DG Agri states that in the last decade, agricultural income in EU-15 showed very modest development[43] (Figure 3.2.1) while it increased considerably in EU-12, thanks to the gradual phasing in of direct payments.

[42]Currently, households are classified as mainly agricultural if their main income source (for the whole of just its head) is farming or households where any member gets some income from self-employment from farming (Hill, 2008).

[43] DG AGRI-FADN (2010): Developments in the income situation of the EU agricultural sector.

Figure 3.2.1: EU development in agricultural income (income per AWU in real terms)



Source: EC, 2011

During the last decade, farm income per worker increased in nominal terms for all the EU-27, but at different pace: in fact, since 2004 in the NMS farm income rose faster, +11% in EU10 (excluding Bulgaria and Romania, where it soared +200% between 2007 and 2008), while the EU-15 recorded +4% (FADN, 2011).

It is also forecasted that in the medium-term the EU agricultural income (under a constant policy assumption) will follow a similar trend, increasing moderately in the EU-15 and growing fast in the EU-12, thanks to the full phasing in of direct payments (which will remain lower than direct payments accorded to the EU-15), an assumed higher value of production, and the decline in farm labour (DG Agri, 2009).

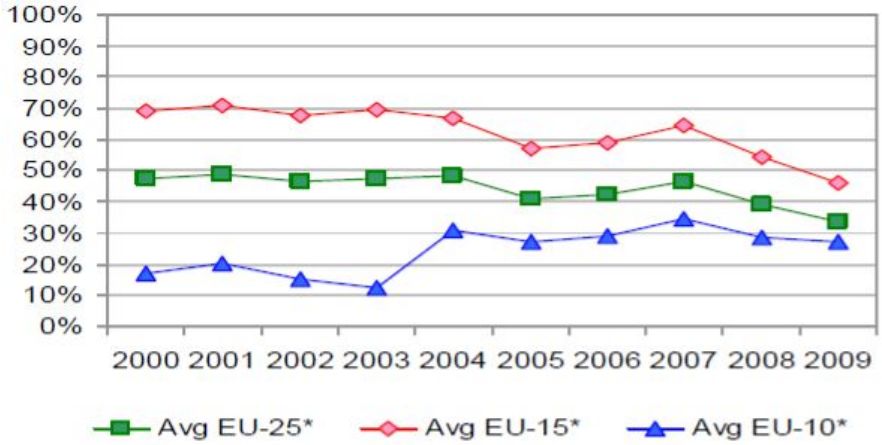
The data above, together with the ones provided by Eurostat (2012) on the change of real income in agriculture per AWU, show that the crisis of food prices was beneficial for farm incomes since 2007 (except for a negative peak in 2009). Between 2005 and 2011, also the EU-27 real agricultural income per worker increased (+18.3%), while agricultural labour input fell (-15.2%). Fixing 2005=100, in 2011 the real income in agriculture per AWU was 187 in Estonia, 174 in Hungary, 144 in the UK, 137 in Denmark and 125 in Sweden, with the EU-27 average at 118. In particular, in 2011, the EU agricultural real income per worker has increased by 6.7% compared to 2010 levels (Eurostat Newsrelease, December 2011), resulting from a rise in real agricultural income (+3.9%) due to higher commodity prices, and from a decline in the number of farm workers (-2.7%). If we rely on the OECD-FAO Agricultural outlook 2009-2018, where the long term estimates show rising agricultural prices and incomes, the EC fears for falling agricultural income in the EU-27 in the next years seem unjustified, even if considered in a scenario characterized by high volatility of commodity prices. Already at the end of 2010 the EC clearly stated in its Official Communication that: “After a decade of mere income stagnation, agricultural income dropped substantially in 2009 adding to an already fragile situation of an agricultural income significantly lower (by an estimated 40% per working unit) than that in the rest of the economy, and income per

inhabitant in rural areas is considerably lower (by about 50%) than in urban areas". For the EC, the main cause of agricultural income stagnation (or even the risk of decline) is represented by the instability which characterizes commodity prices on international market since 2007, influencing input and output prices, and the connected change in production levels, due to yields instability.

Moving from the analysis of the percentage change of the agricultural income in the EU-15 and EU-12 (Figure 3.1.2), to the analysis of the values of the agricultural incomes in comparison with the average growth path followed by the economy, a quite different scenario emerges (Figure 3.2.2)[44]. The average agricultural income increased (Figure 3.2.2) mainly between 2003 and 2004 (the enlargement year) in the EU-10 (Romania e Bulgaria excluded), as a difference with the EU-15, but starting from very different levels. In 2009, the EU-10 farmers (which exclude Bulgaria and Romania) remain poorer than the rest of the society, their income reaching only the 30%, while in the EU-15 farmers incomes are quite the half of the average income in the economy.

By the way, we must underline a main methodological limit of this analysis: the measurement of farmers' income from agricultural activities differs substantially from the calculation of the average wages in the economy. Another important issue is represented by the lack of reliable data on full-time equivalent statistics for the total economy, which bases the calculation of the EU-15 and the EU-10 averages on the selection of just a small number of countries, distorting the results (Jambor, 2012).

Figure 3.2.2: Evolution of agricultural income as a % of average income in the economy



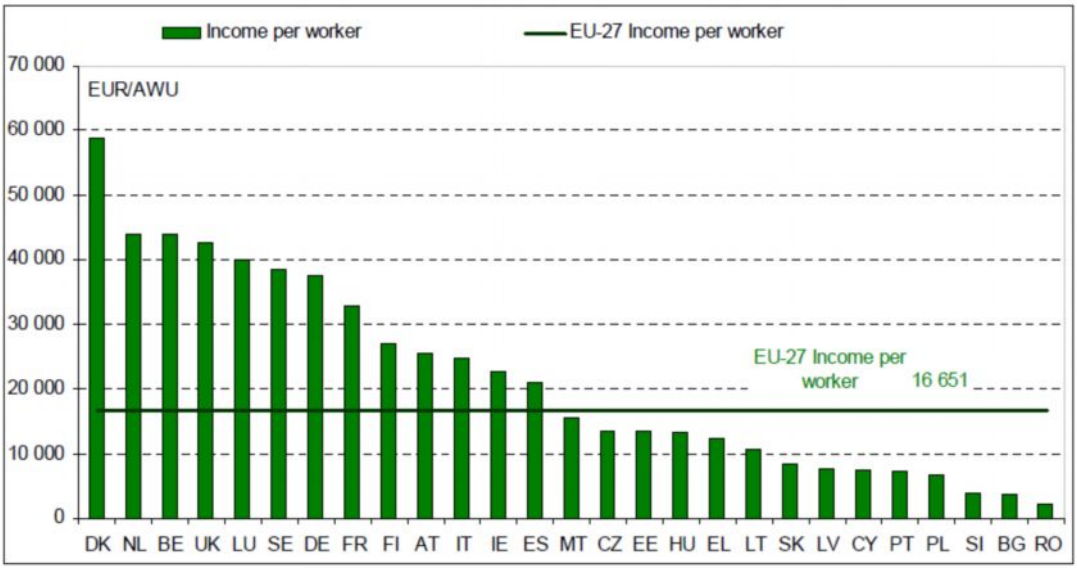
Source: DG Agri, Eurostat

The same scenario appears when looking at the income per worker between Member States (Figure 3.2.3): in 2007 the highest level was recorded in Denmark, the Netherlands, Belgium and UK, and the EU-15 average is 57% higher than the EU-27

[44] As also evidenced by the EC, these figures should be interpreted with care owing to conceptual differences between the measurement of farmer's income from agricultural activities and average wages in the economy, and that, due to the lack of reliable data on full-time equivalent labour statistics for the total economy for some MS, only some of them have been considered to calculate the averages.

one. In the EU-15 only Greece and Portugal showed values below the EU average, while in the EU-10 all the countries set below (53% below the EU-27 average), with Romania and Bulgaria performing the worst (85% below the EU-27 average).

Figure 3.2.3: Income per worker by Member State, 2007



Source: EU FADN - DG AGRI

This relevant difference in income per worker also emerges at the regional level, with higher values recorded in Benelux and Northern Germany, and lower values are in Eastern Europe, Greece and Portugal (FADN, 2011).

Although the EC continues to show the negative difference in agricultural incomes in comparison with the rest of the economy, stating that poverty and vulnerability are characteristic of people living of agriculture in rural areas, recent studies on the topic provide evidence that both in the EU (de Frahan et al., 2008) and in the USA (USDA/ERS Briefing room, February 2012) the average farm household income is greater than the average non-farm household income. In particular, de Frahan et al. analyse 12 OECD countries (Australia, Canada, Finland, France, Germany, Ireland, Italy, Luxembourg, Norway, Poland, United Kingdom and United States) and they find that the average farm household income is greater than the average non-farm household income[45]; lower average farm household income tends to occur sporadically for some years in only six of the selected countries; the incidence of poverty tends to be less severe among farm households than non-farm households but the intensity of poverty tends to be more severe among farm households than non-farm households in most countries (in general there are relatively fewer poor farm households compared to non-farm households).

[45] The distinction between farm and non-farm households is made according to the household's income sources. Here a narrow definition of farm household is used, where household's farm self-employment income is greater than 50% of its factor incomes. A non-farm household is defined as a household whose farm self-employment income is null.

The contrasting positions on farmers' income and living conditions don't take into account a much debated feature: the contribution of subsistence farming to households' real incomes. The predominance of small scale subsistence and semi-subsistence farms is a reality in the NMS even after the EU membership. Although their role in the area and their characteristics are debated (whether they are a free or forced farmers' choice; an inefficient solution or a tool for diversification), last studies (Davidova et al., 2009) find that they aren't a transition phenomenon but a long lasting tendency in the short to long term. Moreover, the subsistence production is able to push a relevant share of subsistence and semi-subsistence farms above the poverty line. At the same time, the CAP strategy in the NMS is not clear: direct payments are accessible also by small farms (minimum 1 hectare), they are farm centric and they aim at providing income support, but they mostly benefit larger and richer farms in more developed regions.

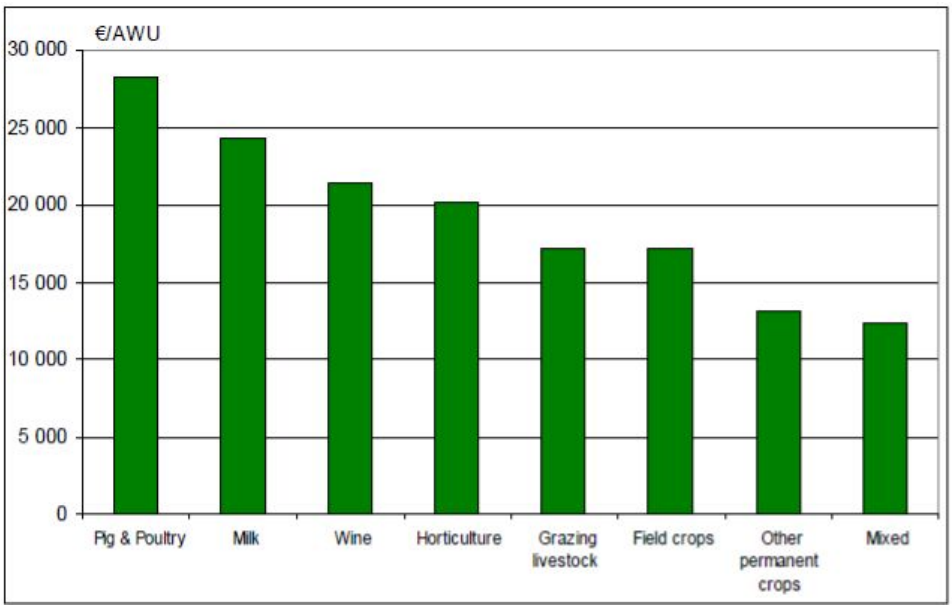
The definition of subsistence farming is not univocal, according to the approach used (consumption versus production). The classification provided by Mosher in 1970 uses the 50% of output sold as threshold for identifying farms as mainly subsistence/semi-subsistence, or mainly commercial. The SCARLED Project defines subsistence farms as the holdings producing mainly for own consumption with less than 1 ESU. In each country, subsistence production is imputed a monetary value, calculated accounting for the share of farms' unsold output valuated for each product at market prices (as a proxy of the opportunity cost of the village or regional average price). This methodology has been chosen due to the lack of adequate data, and it relies on the Farm Structural Survey provided by Eurostat for the EU-27. In fact, Eurostat doesn't report farms below 5ha, therefore it is not possible to obtain the number of farms allowed to get SAPS entitlements in NMS (equal or over 1ha).

Income dependency on subsistence production highlights the presence, together with the reliance on unearned income (land rent) and transfers (public or remittances from abroad) of vulnerability in rural areas, which opens the way to rural poverty (Bogdanov, 2007). The poverty threshold varies across the EU Member States, as it is set at 60% of the national equivalized median income. Rural poverty is associated to location in remote areas, farm size and land ownership: the lowest farmers' income is recorded for people owning a small plot (below 1ha) or being landless, and located in loosing or remote areas which don't provide any income diversification opportunity (Petrovici et al., 2005). Therefore, measures for poverty alleviation should be a central point in the Rural Development Policy (RDP) in the NMS, focusing on improving education, vocational training, microfinance and diversification activities (Van den Berg, 2001).

The introduction of CAP direct payments in the NMS in its current income-support shape will not contribute to improve poor farmers' living conditions, either because they are not eligible (according to the minimal size of land required) and because the payments are not subjected to the introduction of diversification and off-farm activities. The case studies analysis provided by Chaplin et al. (2004) on several NMS shows that farmers consider direct payments only as an income support instrument, thus decreasing their willingness to diversify by creating off-farm businesses, or entering the market.

The limits of measuring farm income go together with another important issue, the inequality in support distribution: the OECD found lately (2011) that the single payments are still skewed towards bigger and already wealthier recipients, and benefits tend to be capitalised into land values thus not reaching active farmers[46]. The support is very unequally distributed across the EU: 25% of farms, which are the largest ones, receive 75% of payments. The latest FADN analysis (2011) on farm income development in the EU links the differences in income levels to the differences in the Member States productive orientation, the significant diversity in farm structure, the farm technical strategy and the natural conditions. Moreover, it affirms that direct payments play a crucial role in farm profitability, because they increase significantly the share of farms able to cover their total costs. Therefore, the introduction of better measures to analyse farm income and the provision of more information on the CAP payments would contribute understanding the real magnitude of poverty and inequality among farmers, and to better target the future CAP measures accordingly.
The changes in farm income according to farm specialization and farm size are shown in Figure 3.2.4: the highest income per worker is recorded (average 2004-2006) by pig and poultry farms, followed by milk producers, while it is lower for fields crops and mixed farms.

Figure 3.2.4: Income per worker by farm type, average 2004-2006



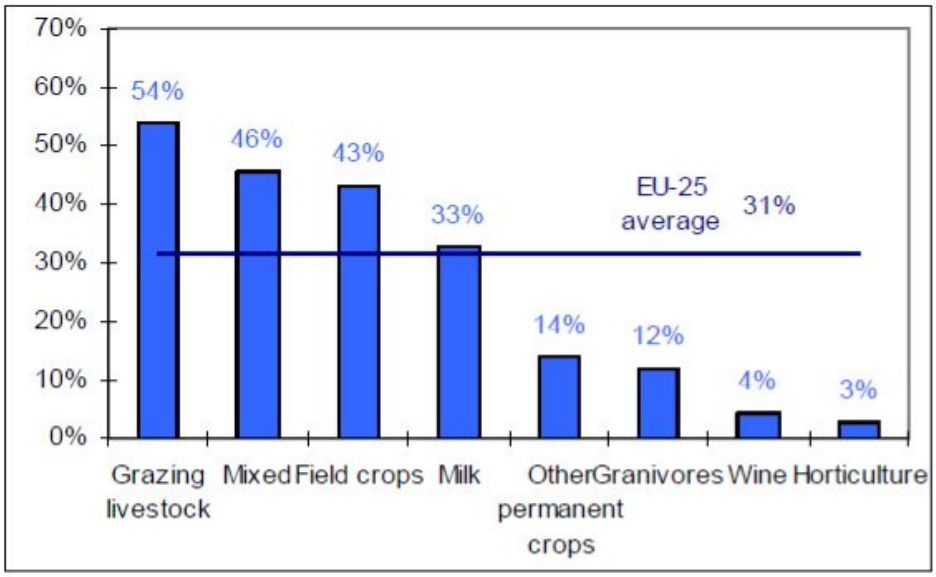
Source: EU FADN – DG AGRI

At the same time these latter farm types, together with grazing livestock farms, receive the most of direct payments, well above the EU-25 average (grazing livestock farms

[46] In the NMS, land parcelization, the limit of landownership set to 300 ha, and the prohibition for cooperatives to own land, introduced with the land reform after the system change (i.e. in Hungary), induced small farmers to rent land, thus receiving both the renting fee and the decoupled payment (SAPS).

receive 46% of direct payments, well above the average level of 31%), while the lowest support is provided for wine and horticulture (Figure 3.2.5).

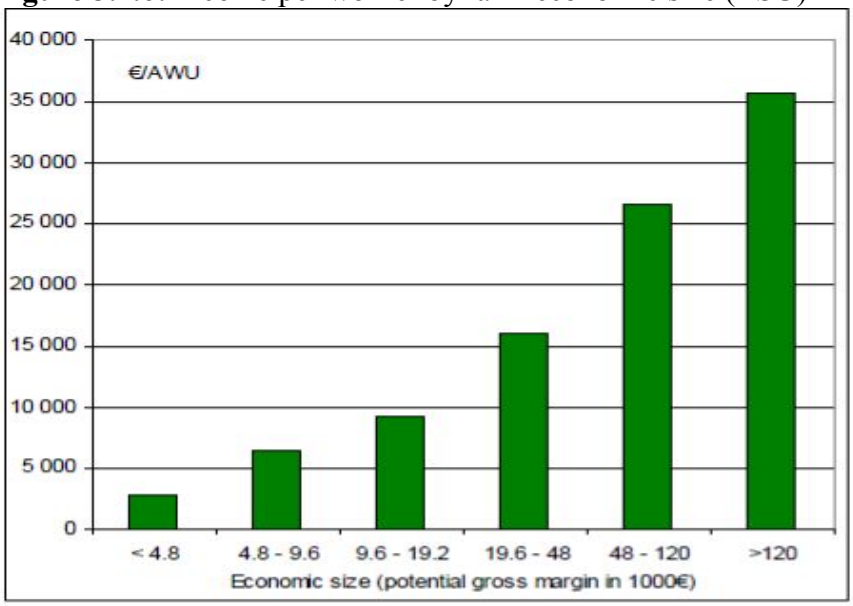
Figure 3.2.5: Share of direct payments in income by farm type, average 2006-2008 in EU-25



Source: EU FADN – DG AGRI

Moreover, the bigger the farm size, the higher the income, especially for farms over 100 ha (Figure 3.2.6).

Figure 3.2.6: Income per worker by farm economic size (ESU)



Source: EU FADN – DG AGRI

While over 40% of the EU farms set in the income class below EUR 5,000, there is a smaller share (around 3%) of farms which shows an income above EUR 70,000 (in

average 2007-2008). This 3% of richest farms produces 18% of the EU agricultural output, while farms till EUR 5,000 reach 7%.

3.3 The long reform path: the CAP between dated barriers and future visions

There is a well-known citation from a famous Italian book written by Tomasi di Lampedusa, "The Leopard", where the protagonist, the Prince of Salina, affirms that "if we want things to stay as they are, things will have to change". This sentence nicely adapts to the path followed by the reforms of the CAP budget since 1988, when the so-called "agricultural budget guideline" was established, which fixed the increase in CAP expenditure below 74% of the EU GDP growth. In 1992, the Mac Sharry Presidency introduced several modifications, such as cut support prices (-15% for beef, -30% for crops), and a partial decoupled system of payments, to be compensated by direct aids per hectare. The refinement of the EU balance discipline determined a change in the relation between EU budget and CAP: from unidirectional (CAP choices impact on the EU budget) it became bidirectional (also budget problems affect CAP). Partial decoupling and the continuation of set-aside, which became obligatory since 1992, encouraged extensive agriculture and together with the introduction of agro-environmental measures (completed by cross compliance in 2003), the CAP started to approach the environmental challenge. In 2003, the CAP Medium Term Review (MTR) – or Fischler reform - fully decoupled support from production, froze the national allocations of CAP funds and preventing from redistribution among States, which are now responsible for policy implementation at the national level. The CAP MTR is considered a turning point for European agriculture because it introduced (Swinnen, 2008):

- the single farm payment (SFP) on the basis of historical entitlements, in order to decouple support from production, making the CAP fit for the WTO Doha Round.
- cross compliance, linking SFP to farmers' respect of environmental, animals and food quality standards, and modulation, which allows the Member States to shift funds from pillar I to pillar II by reducing transfers to the larger farms.
- Reform of market organizations, especially for dairy and rice.
- Strengthening of the financial discipline.

Moreover, the Fischler reform saved the CAP budget from the cuts needed to finance the costs of the 2004 EU Eastern enlargement, with the decision to freeze the budget (i.e. only 1% nominal budget increase was allowed) and to introduce direct payments gradually in the NMS. In this way, the CAP MTR preserved the former CAP financial endowment till 2013, limiting the redistributive power of the reform package, and only marginally affecting the previous political equilibrium. This result was obtained after quite a decade of internal debate among the EU-15 which was often guided by the main CAP beneficiaries (France, Greece, Spain), blocking the development of a distribution policy among the Member States based on more equitable and objective economic criteria (e.g. p.c. GDP, agricultural share on GDP and employment in agriculture).

With decoupling, the EC aimed at facing internal and international pressing issues: the need to ceil the budget for the CAP, which reached also the two-thirds of the EU budget at the end of the 1980s rising taxpayers' complaints; the accomplishment of the requests coming from the international arena (and WTO negotiates in particular) for lower price distortion and internal market support (i.e. production subsidies, tariffs). The urgency to reform the support was also advocated by the CAP opponents due to the changing demographic and production conditions of agricultural and rural areas, and to the lack of policy targeting (i.e. to poor small farmers in depressed areas). In fact, in the last decades, the importance of the primary sector on GDP decreased (from 6% of GDP in 1970s to less than 2% in 2007, even if it was around 4.5% in NMS in 2007[47]), and rural population declined[48].

Decoupling had several implications for competition in global food and agricultural markets, as well as in WTO agricultural trade talks (especially at the Uruguay Round where the US and the Cairns Group of agricultural exporters, headed by Australia, pressed the EU for reforms): first of all, it allowed the EU to move the most of the support from the highly distortion amber box to the green one[49]. In fact, decoupled payments are fixed payments, not tied to specific production or activities: they reduce farmers' income risk since payments are based on a fixed factor (the 2000-2002 historical payments on area and yields basis, or on a per head basis for livestock payments), leaving farmers free to produce according to the market signals and incentives[50]. Only few coupled payments remained, for suckler cow, goats and sheep premium, for which the Member States could maintain the previous level of coupled support (DG Agri). Since the 1992 CAP reform, cumulative prices decreased by 70% for rice and durum wheat, and by more than 60% for beef and soft wheat (Figure 3.3.1).

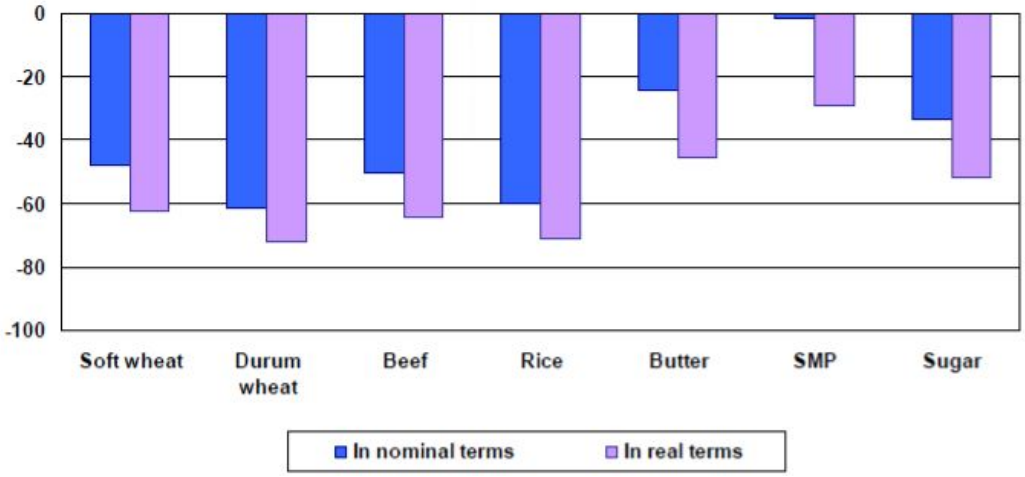
[47] Csaki, Cs., A. Jambor (2009): The diversity of effects of EU membership on agriculture in New MS. Policy Studies on Rural Transition No. 2009-4. FAO

[48] The classification of the population in rural or urban, and the connected flow of public support, is a much debated issue. A better area classification would allow introducing better targeted policies, reducing the waste of public money.

[49] WTO, Agriculture Negotiations Backgrounder on Domestic Support: Amber, Blue and Green Boxes. www.wto.org

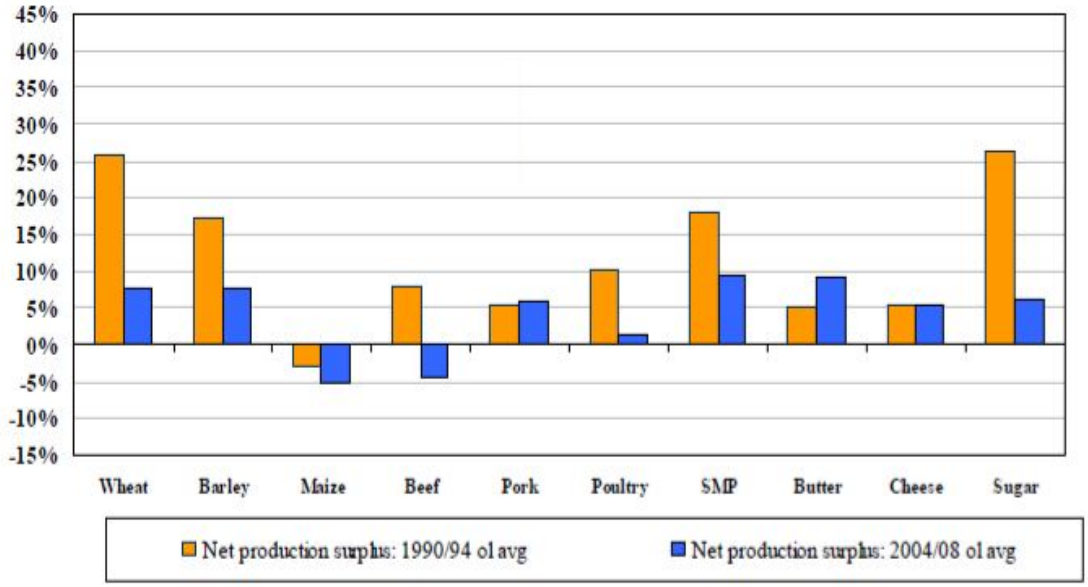
[50] Examples of this were provided in 2008, when farmers switched productive plots to crop cultivations, due the notable increase in crop prices (wheat, maize, rice) in 2007.

Figure 3.3.1: Cumulative reduction in prices support between 1991 and 2009



N.B.: in percentage
Source: EC (2010)

Figure 3.3.2: Change in net production surplus (% of consumption)



Source: DG Agri (2010)

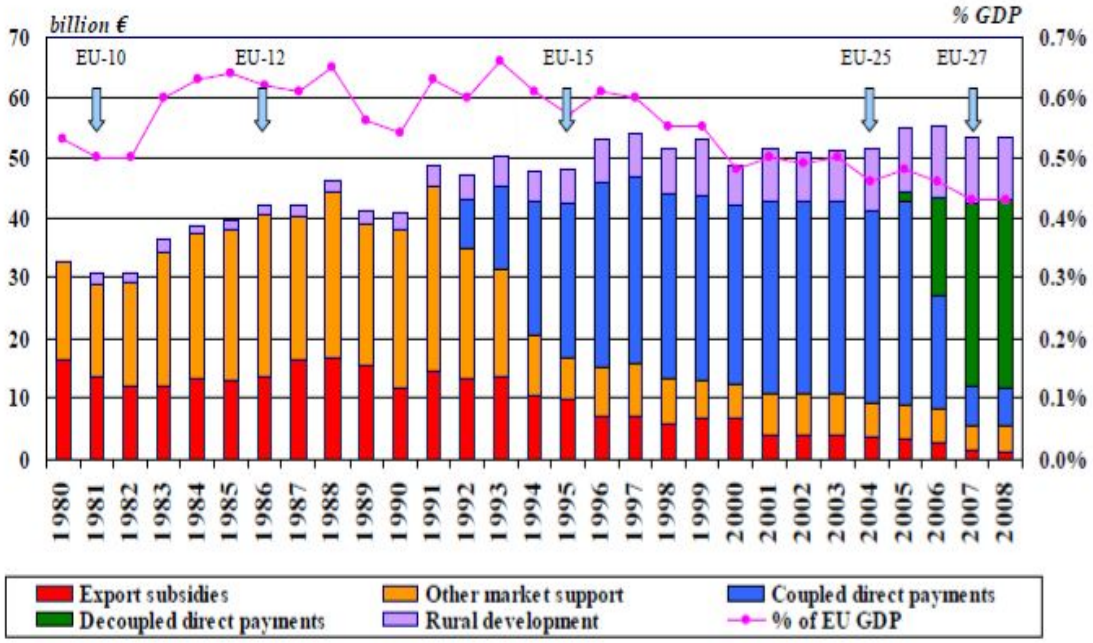
The reduction of the coupled support had also an important effect on the quantity of the commodities produced. The net production surplus decreased relevantly between 1990 and 2008 in all the sectors (excluding butter, pork and cheese), and it also became negative for beef (Figure 3.3.2).

The CAP Health Check in 2008 promoted other corrective measures: the gradual increase in milk quotas, which were set to expire in 2015; the abolishment of set-aside[51]; more funds (till 10% of direct aids) for modulation, to be reinvested into Rural Development for climate change, renewable energy, biodiversity and innovation

[51] Since 1992, arable farmers were required to leave 10% of their land fallow, both to preserve the land in good agri-environmental conditions, and to limit the production potential.

programmes; the promotion of more compelling cross compliance; the introduction of art. 68 which allows the Member States to retain till 10% of their national budget ceilings for environmental measures and marketing; an increased support to young farmers. The results from the past CAP reforms are illustrated in Figure 3.3.3.

Figure 3.3.3: Evolution of CAP expenditures in the reform path



Source: DG Agri (2010)

Export subsidies and market support, which prevailed since the creation of the CAP, started to decrease in 1992, in favour of rural development and coupled direct payments. In 2005 direct payments were introduced, and rapidly took the place of coupled payments, while market and export support continued to decrease, and rural development measures stood still. Figure 3.3.3 also shows the progressive decrease, since 1995, of the EU budget allocated to CAP, which now represents 0.45% of the EU GDP, in favour of the structural and cohesion policy. In fact, the EU budget for the programming period 2007-2013 shows fast growing allocations for the section "Sustainable growth", which includes the policies for cohesion, and stagnating allocations for the CAP ("Preservation and Management of Natural Resources"), which becomes the second voice of the budget (Table 3.3.1). Moreover, within the CAP section, the most of the budget is directed to pillar I (market related expenditure and direct payments), while financial endowments for pillar II grows slowly.

Table 3.3.1: EU Budget for commitments, 2007-2013 (in million EUR)

Commitment appropriations	2007	2008	2009	2010	2011	2012	2013	Total 2007-2013
1. Sustainable Growth	53,979	57,653	61,696	63,555	63,974	66,964	69,957	437,778
1a. Competitiveness for Growth and Employment	8,918	10,386	13,269	14,167	12,987	14,203	15,433	89,363
1b. Cohesion for Growth and Employment	45,061	47,267	48,427	49,388	50,987	52,761	54,524	348,415
2. Preservation and Management of Natural Resources	55,143	59,193	56,333	59,955	60,338	60,810	61,289	413,061
of which: market related expenditure and direct payments	45,759	46,217	46,679	47,146	47,617	48,093	48,574	330,085
3. Citizenship, freedom, security and justice	1,273	1,362	1,518	1,693	1,889	2,105	2,376	12,216
3a. Freedom, Security and Justice	637	747	867	1,025	1,206	1,406	1,661	7,549
3b. Citizenship	636	615	651	668	683	699	715	4,667
4. EU as a global player	6,578	7,002	7,440	7,893	8,430	8,997	9,595	55,935
5. Administration	7,039	7,380	7,525	7,882	8,334	8,670	9,095	55,925
6. Compensations	445	207	210					862
Total commitment appropriations	124,457	132,797	134,722	140,978	142,965	147,546	152,312	975,777
as a percentage of GNI	1.02%	1.08%	1.16%	1.18%	1.16%	1.13%	1.12%	1.12%

Source: EC, 2011

3.4 The CAP towards 2020: a tool for a wider Europe?

According to the OECD "Evaluation of Agricultural Policy Reforms in the European Union" (OECD, 2011b), the European support to farm incomes has decreased substantially over the past 20 years (from 39% annually over the 1986-88 period, till 22% over the 2008-10 period). Among the main reasons, the OECD evidenced the 25 years of CAP reform, aimed at making the EU agricultural sector more competitive and less distorted, and the high commodity prices, which since 2007 automatically push down income support. Moreover, the CAP started to focus the policy attention on new challenges and objectives, such as the environmental sustainability of the agricultural activity and the strengthening of monitoring and evaluation in order to increase policy effectiveness. As the OECD director of Trade and Agriculture, Ken Ash, evidenced, this period of expected growth in demand and higher real commodity prices offers important opportunities to the re-orientation of CAP away from broad income support and towards investments for a competitive agro-food sector. In fact, after the last EU Eastern enlargement, the European agriculture is more diversified, and its concept of land use and farm production system is changing towards agro-environmental sustainability, in order to meet the sustainability challenges and to account for new tendencies, such as

the new producers-consumers relations based on proximity of production-consumption places and food transparency, and the growing citizens' requests for public goods preservation and quality of life (urban and rural green). These novelties come together with the different development trends recorded by expanding urban areas, and the functional and geographical redefinition of peri-urban areas.

This change in policy orientation was also invocated by the EC in the regulations for the programming period 2014-2020. It identifies food security, environmental and climate change, and territorial balance (with particular attention to rural areas) among the main topics on the agenda, to be achieved through redistribution, redesign and better targeting of support, to add EU value and quality in spending. This attention also answers the EC need to justify in front of taxpayers – in an international scenario characterized by economic recession and financial disorders – the still relevant budget allocated to CAP (more than EUR 60 billion, 41% of the total EU budget in 2012)[52]. Thus, the new CAP framework for the period 2014-2020 raised the attention of many analysts from different sectors: would the EC continue and strengthen reforms towards a multifunctional, sustainable, safer and more equitable agriculture?

The EC Communication (November, 2011) "The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future" provides half solutions, and left many – especially in the NMS – unsatisfied. In fact, formally the EC focuses on the following issues: the introduction of a green payment for greening the CAP; the convergence of funds payments among the Countries, the need to assure the support only to active farmers and a capping for the aids for a less unequal distribution of support; a simplified scheme for small farmers; a consistent revision of the structure of the RD policy but without main changes in its overall budget. By the way, the financial allocation and the redistribution of measures between the first (and wealthier) and the second pillar leave space for comments.

The seven legislative regulations included in the legislative proposal regard: direct payments and the rules governing its application in 2013; the change in support measures for the wine sector (moved to the single payment scheme; the introduction of one CMO and the linked set of aids and restitutions; support to RD; the financing, CAP management and monitoring (horizontal regulation) including the dispositions which are shared by the two pillars; the end of modulation of direct payments thanks to higher flexibility of pillar I and II funds. By the way, putting principles into action is always more demanding especially for a sector that the EU Member States (MS) still feel of strict national domain and interest.

The search for a more equal and balanced distribution of CAP support involves several changes as regard as pillar I:

- **Modification of direct payments**: the proposal follows the need to better distribute payments both among MS, and between farms (currently the most of direct payments flow to the biggest farms located in Central-Northern Europe).

[52] The nominal budget is increasing while it is decreasing in percentage of the total EU financial commitments.

Referring to the former issue, a convergence mechanism was introduced, disposing that MS with an average payment per hectare over 90% of the EU average shall finance (for 1/3 of the difference) the other countries which set below that average. Thus, since 2014 twelve countries will benefit from higher payments[53]. Among the main contributors there is Greece, whose maximal will decrease by 14% in 2017; the Netherland (-8.2%); Belgium (-7.7%); Italy (-6.9%). Then, a flexibility mechanism which allows the MS to move till 10% yearly of their national ceiling from pillar I to pillar II is introduced. By the way, the enhanced flexibility in funds disposal would not easily promote any improvement in the effectiveness of the rural development measures, because RD budget is left unchanged by the proposal. A more equal distribution of payments among farmers within the MS is advocated before 2019, when the reference values will have to be equalized, but still subject to regionalization.

- **Definition of active farmers**, in order to avoid payments to benefit landlord and retired farmers who rent the land, is provided. The MS can exclude farmers from payments if direct payments are below 5% of their total income from off-farm activities in the year[54], and if their arable land is not actively worked. This solution leaves the annual issue of the calculation of off-farm activities, and their relation with the mainly agricultural activities, unsolved. In fact, direct payments will still be determined by the number of hectares and by the economic relevance of the off-farm activities.
- **Minimal requirements to access direct payments**: a yearly threshold of direct payments above EUR 100 and farm size over 1 hectare are set, but the MS can adapt this level according to their structural characteristics, especially where the property is highly fragmented. This is in particular the case of several EU-12, where a lot of active farmers, especially in lagging behind areas, couldn't access direct funds because they owned 0.3 ha or less (in terms of contiguous plots).
- **Capping aids**: the introduction of a compulsory upper ceiling for direct payments to large richer individual farms ("capping"), already included in Agenda 2000 as a voluntary choice by the MS, is now enforced. In particular, payments will be reduced by between 20% (for payments between EUR 150,000-200,000) and 70% (for payments between EUR 250,000-300,000), and they will be cancelled for quotas above EUR 300,000. This provision should contribute to better distribute the CAP funds, trying to target direct payments in order to decrease their currently inefficient distribution, and it would help defending the public image of the CAP and EC role in the eyes of European taxpayers. By the way, several open issues remain on the table: the exclusion ceiling are still very high, if we consider that high levels of payments inequality

[53] Bulgaria, Estonia, Finland, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK).

[54] This limit doesn't apply to farmers who received less than EUR 5,000 in direct payments in the previous year.

occurs at much lower financial level, and no statement is made about the distribution of the amount of money made available from this solution. Moreover, the amount of money interested is very low, between EUR 278 million and EUR 835 million for the whole EU27 which represents 1-2% of the total amount of direct payments (it is also relatively low when compared to the current amount resulting from modulation, stated around EUR 3 billion for 2013). Thus, it seems that the capping strategy is not so relevant for agricultural performance purposes, as it is for the EC's objective to "clean" the CAP image.

An important contribution of the 2014-2020 legislative proposals is represented by the division of the SFP into several components, with the inclusion of a compulsory greening payment for environmental good practices and solutions, and the continuation of the support for young farmers. The coupled payments under art. 69 (CE) n. 1782/2003, art. 68 (CE) n. 73/2009, and the support for less favoured areas (LFA) till 5% of national ceiling are on voluntary basis. Coupled support ranges between 5% and 10% of national ceilings, interests selected products (oilseeds, bovines...), and it is direct to areas where this production is endangered but covers a relevant socio-economic function. The introduction of a single Common Market Organization (CMO) should decrease bureaucracy, improving its role as safety-net.

Conditionality and risk management are still included in the regulation for the next programming period. Conditionality, both at program and instruments level as well as Member States level is strengthened, in order to assure higher accountability and effectiveness of the EU support, and to target financial resources to fiscally sound Member States. Main changes involves risk management, which is moved from pillar I to pillar II. Although this solution can contribute to decrease the overlapping of measures and instruments between the two pillars (without considering the already existing duplications between the CAP and the Cohesion policy), the low financial endowment disposed for pillar II endangers the effectiveness of the measure. In fact, the CAP budget distribution between the two pillar reports minimal changes (Table 3.4.1); therefore it will be difficult to reach a critical level of financing for the new priorities included in pillar II.

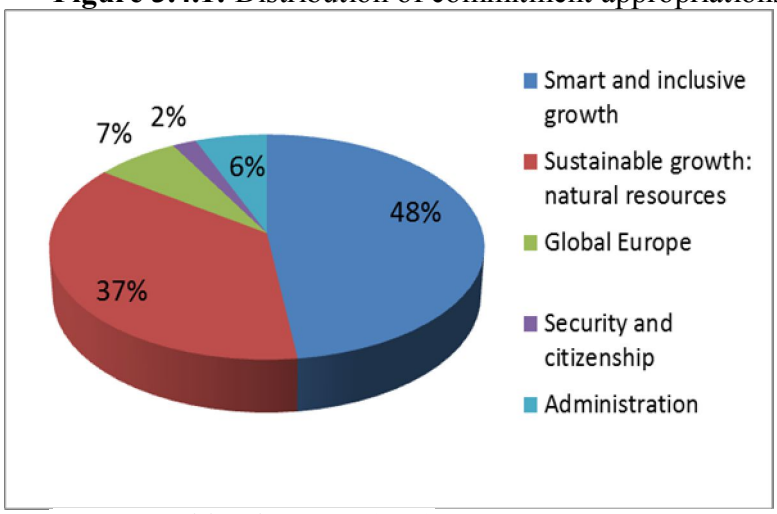
The breakdown of the multi-annual financial framework (MFF) in Table 3.4.1 shows the shape of the EU financial framework from 2014 till 2020. The amount of commitment appropriations reaches EUR 1,025,000 million (1.05% of GNI) and EUR 972,198 million in payment appropriations (1% of GNI).

Table 3.4.1: EU Budget for commitments and payments, 2014-2020 (in million EUR)

Commitment appropriations	2014	2015	2016	2017	2018	2019	2020	Total 2014-2020
1. Sustainable Growth	64,696	66,580	68,133	69,956	71,596	73,768	76,179	490,908
of which: Economic, social and territorial cohesion	50,468	51,543	52,542	53,609	54,798	55,955	57,105	376,020
2. Sustainable Growth: Natural Resources	57,386	56,527	55,702	54,861	53,837	52,829	51,784	382,927
of which: market related expenditure and direct payments	42,244	41,623	41,029	40,420	39,618	38,831	38,060	281,825
3. Security and Citizenship	2,532	2,571	2,609	2,648	2,687	2,726	2,763	18,535
4. Global Europe	9,400	9,645	9,845	9,960	10,150	10,380	10,620	70,000
5. Administration	8,542	8,679	8,796	8,943	9,073	9,225	9,371	62,629
of which: administrative expenditures for the institutions	6,967	7,039	7,108	7,191	7,288	7,385	7,485	50,464
Total commitment appropriations	142,556	144,002	145,085	146,368	147,344	148,928	150,718	1,025,000
as a percentage of GNI	1.08%	1.07%	1.06%	1.06%	1.05%	1.04%	1.03%	1.05%
Total commitment appropriations	133,851	141,278	135,516	138,396	142,247	142,916	137,994	972,198
as a percentage of GNI	1.01%	1.05%	0.99%	1.00%	1.01%	1.00%	0.94%	1.00%

Source: own elaborations on EC (2011)

Figure 3.4.1: Distribution of commitment appropriations in MFF 2014-2020



Source: own elaborations on EC (2011)

The total budget is to be divided between five headings (Figure 3.4.1): quite half of the money (48%) is directed toward "Smart and Inclusive Growth", which includes the

structural and cohesion funds, while the CAP ("Sustainable Growth: Natural Resource") comes second, with 37%. The relevant difference in financings between pillar I and pillar II persists: pillar I will get EUR 281,825 million (27% of total budget), and pillar II EUR 101,102 million. The commitments for "Sustainable Growth" increases during the seven years program (+18%), while the CAP budget decreases (-10%), driven by pillar I, while pillar II remains unchanged (+0.1%).

The support for Rural Development in the next programming period (COM (2011)627) is left unchanged in terms of its share on the total CAP budget, even if the proposal doesn't give information on the distribution among the MS, just stating that it will take into account the current distribution (but not its structure). In fact, the three priority axis which characterized the period 2007-2013 disappear and they are replaced by six priorities, in order to avoid the overlapping of policy instruments (currently several measures do tackle more than one goal) and to promote value added creation from the additionality of multidimensional and interrelated measures, following an holistic approach. The EC establishes, within the new regulations for structural funds, that the European Agricultural Fund for Rural Development (EAFRD) will work in cooperation and complementary to CAP pillar I and the other structural funds (ESF, EFRD) and will be part of a single Common Strategic Framework (CSF). It will be implemented through contracts at the national level, and when more regional RDPs exist, they will be coordinated by a National Framework, in which the regions cooperate in order to meet the national goals. Each MS must provide at least 25% of its budget for each RDPs within the EAFRD for environmental and climate change, and 5% for LEADER.

For sure, the EC doesn't simplify the management and coordination of RD measures: in fact, the list of measures is still high (25), and their specification quite vague (some of them were simply gathered together under one name or title).

In comparison with the current programming period, some measures have been discarded, among which:

- Early retirement;
- Adding value to agricultural and forestry products;
- Meeting standards based on Community legislation.

At the same time, the possibility of this new setting to contribute achieving some results in rural areas is still endangered by the limited financial resources, which don't allow reaching a critical financial threshold for the effectiveness of measures. Moreover, some important open issues are left on the table, starting with the identification and classification of rural areas (the EC has developed its own methodological tool in 2010, based on cells grid, but its legal framework still refers to the OECD classification of rural areas) to the introduction of clear (also for the policy makers who will use them) monitoring and evaluation indicators. In fact, nowadays the Common Monitoring and Evaluation Framework (CMEF), includes 160 qualitative and quantitative indicators for analysing rural development policies. In conclusion, the EC still maintains in the facts its vision of RD as a matter of agriculture, despite the publicized interest for multifuctionality and diversification of rural areas.

Table 3.4.2: Peculiarities of the two CAP pillars in 2014-2020

Characteristics	**Pillar I**	**Pillar II**
Co-financing	No	Yes
Typology of intervention	Yearly payments	Multi-annual contracts
Payments management	Centralized (Agea)	Peripheral (States, Regions)
Systemic approach	No (farm alone)	Possible, within the food chain
Adaptability	One fit for all EU	Fitting regional realities
Selective	No	Yes
Conditionality	No (only environmental)	Yes
Clear objectives	No (income, risk…)	Quite (objectives-measures)
Targeted	No (per ha)	Yes (selection of projects)
Tailored	No (historical reference)	Yes (tenders)

Source: own elaborations on Sotte, 2012

As a difference from pillar I, RD is characterized by higher conditionality of payments (which interest only the greening ones in pillar I), flexibility and a regional/national management system. Moreover, RD support is more targeted to the measures and projects selected to meet the priorities and tailored to the local reality (Table 3.4.2).
Among the five most important policy instruments identified by the EC for RD we find:

- Advisory services, farm management and farm relief services;
- Investments in physical assets;
- Farm and business development;
- Co-operation;
- LEADER.

The emphasis is placed on the creation of an advisory service (again! Its first introduction dates back 1972) focused on the agricultural activity, and on the investments in physical assets, in order to improve the performance of agricultural holdings. An interesting point is the proposal of a measure ("Co-operation") for strengthening the relations between the agri-food sector and the research centres, in order to improve innovation (e.g. through new tangible and organizational technologies) and competitiveness. The importance of knowledge transfers for higher competitiveness is also underlined by two measures – "Knowledge transfer and information actions", and "Investments in new forestry technologies and in processing and marketing food products". This latter one represents another area of interest for the EC, the promotion of quality products, food chains and risk management in agriculture in endangered and at risk areas, covered by the following measures:

- Quality schemes for agricultural products and foodstuffs;
- Payments to areas facing natural or other specific constraints;
- Restoring agricultural production potentially damaged by natural disasters and catastrophic events and introduction of appropriate prevention actions;
- Setting up of producers groups;
- Risk management;
- Income stabilization tool.

Thus, the EC looks at actual and challenging priorities (e.g. food chain development), but the instruments are often dated (setting up of producers groups), while the income stabilization tool is much undefined.
The most of the measures linked to environmental sustainability are included in pillar II, but they are not covered by an adequate financial assistance:

- Afforestation and creation of woodlands;
- Establishment of agro-forestry system;
- Agro-environment-climate programs;
- Organic farming;
- Natura 2000 and Water framework directive payments;
- Investments improving the resilience and environmental value of forest ecosystems;
- Forest-environmental and climate services and forest conservation.

Although the EC set a lot of attention to the issue of poverty, which according to the EC (2010) is mainly located in rural areas (2010 was the European year for combating poverty and social exclusion, and it was stated that 17% of EU citizens cannot afford the basics), just two measures address it:

- Basic services and village renewal in rural areas;
- LEADER.

In conclusion, the CAP 2014-2020 seems another lost opportunity for a more sustainable and well balanced development of rural areas, while RD is still considered as the second rib of an agricultural sector where the interests of agri-food lobbies still prevail. Moreover, the important search for higher effectiveness and efficiency of policy measures mainly remains in the shadow.

CHAPTER 4

THE CHALLENGE OF CAP INTRODUCTION IN HUNGARY: ISSUES AND PLAYERS

4.1 The EU perspective: instruments and support measures for agriculture and rural development in Hungary

The Hungarian way towards the EU accession was quite long and complex, as the timeline below shows (Box 1).

Box 2: EU-Hungary relations: a timeline

26 September 1988	Signing of the Agreement on Trade, Economic and Commercial Co-operation between the European Commission and Hungary
8 August 1989	Opening of diplomatic relations between Hungary and the European Union
8 June 1990	The EU representation opens in Budapest
16 December 1991	The Europe Agreement establishing association measures between the EU and Hungary is signed
1 March 1992	Trade related aspects of the Europe Agreement come into effect
28 October 1992	The first meeting of the EC Presidency, the EU Commission and the Viségrad countries takes place
21-22 June 1993	The European Council decides in Copenhagen that Central and Eastern European association countries may apply for the EU membership
26 January	Establishment of the Hungarian EU Parliamentary Committee
1 February	The Europe Agreement of association between Hungary and EU becomes operative
1 April 1994	Hungary submits application for membership of the EU
31 March 1998	Opening statements of accession negotiations between Hungary and the EU
9 July 1999	The Hungarian government submits the National Programme for Adoption of the *Acquis Communitaire* to the European Commission
8 November 2000	The European Commission publishes 'Enlargement Strategy Paper'
5 September 2001	The European Parliament report on Hungary and EU enlargement
13 December 2002	At the European Council in Copenhagen Hungary's accession negotiations is considered completed
1 May 2004	Hungary joins the European Union

Source: Chronology of the relations between Hungary and the EU, www.kum.hu

After the official start of the negotiation process for the EU accession in 1998[55], Hungary introduced the National Program for the Adoption of the *Acquis Communitaire* in 1999[56].

Between 1999[57] and 2003[58], the EC was in charge to monitor the progresses made by Hungary in meeting the membership requirements in the Chapters of the *Acquis*. The

[55] EC Comprehensive monitoring reports on the future Member States, 2003.
[56] EC Hungary Regular Report 1999.
[57] Year of the first Regular Report of the Commission on Hungary's Progress toward Accession.
[58] Year of the EC Comprehensive Monitoring Report on Hungary's Preparation for Membership.

sectors where the adjustment to the EU regulations and legislation were harder to obtain include Agriculture and rural development, Statistics and Economic and monetary policy, all still under completion at the time of the EU membership.
As for Agriculture and rural development, the priorities were divided in short and medium term (to be fulfilled before year 2000 or 2003 respectively), and the EC evidenced in particular:

- the alignment to the *Acquis* concerning veterinary and phytosanitary standards, controls at the external borders, the respect of agri-environmental practices and biodiversity;
- the ability to introduce the institutional managing mechanisms and the administrative structures necessary for the control of the agricultural markets within the CAP;
- the implementation of structural and rural development measures;
- the adoption of veterinary and phytosanitary prescriptions;
- the modernization of the food processing industry;
- the restructuring of the agri-food sector[59].

Still in 2007, a relevant issue was represented by the persisting lack of statistical information, at disaggregated level, regarding the agricultural production structure and its change during the years which represented an obstacle for conducing impact assessment analysis on the pre-accession funds in the period 2004-2006.
The last EC monitoring report before the accession of Hungary in the EU[60], in the section regarding Agriculture and rural development, highlighted the progresses made by the country in meeting the most of the requirements derived from the accession negotiations, especially the institution of FADN/RICA, the alignment of public support to agriculture, the certification of products quality and the promotion of organic production, the respect of zootechnical measures, while delays persisted in the veterinary and phytosanitary control measures. By the way, the most important delays were recorded in the institution of a functioning Paying Authority and the disposition of an Integrated Management and Control System, in the design of rural development programs and in the institution of producers' organizations. Thus, the EC deserved doubts on the ability of the institutional management to adequately fulfil the tasks required by the CAP introduction in Hungary, and to manage the funds directed to pillar I (especially SAPS payments) and pillar II. This issue negatively impacted on the effectiveness of CAP implementation in the country, because it prevented farmers to obtain the funds for which applied, with no consideration for the time required by the sequence of the agricultural production (Csáki et al., 2010).
In the EU pre-accession period, PHARE (1990-2003) was the main support program, with the aim to strengthen the Hungarian public administration and the institutions, allowing them to effectively function inside the EU; to promote the convergence of the

[59] http://europa.eu/scadplus/leg/it/s40003.htm
[60] EC Comprehensive Monitoring Report on Hungary's Preparation for Membership. 2003

Hungarian law with the European Union's legislation; to contribute to the economic and social cohesion. The PHARE promoted the development and restructuring of institutions, the launch of investment, especially with regard to infrastructures.
In the field of agricultural and rural development, the SAPARD (Special Accession Programme for Agriculture and Rural Development) program[61] was launched for the NMS by Agenda 2000, in order to assist the country with institutional and structural change in agriculture; in the preparation for the CAP implementation, clarifying the objectives and the instruments; in the provision of financial assistance for specific rural development project.
Although it was financially less consistent than PHARE, its relevance among farmers is evidenced by the high number of applications (8 828) coming from the Hungarian farmers. Moreover, the SAPARD experience constituted the basis for the creation of the Agricultural and Rural Development Operational Programme (ARDOP[62]) and the National Rural Development Plan (NRDP[63]), which included the Hungarian priorities, instruments and funds for agriculture and rural development in the first programming period 2004-2006.
The SAPARD payments were mostly (94%) concluded in 2006, two years after the EU membership. Between 2003 and 2006, the SAPARD total commitments for Hungary amounted at HUF 63,259 million, while payments stopped at HUF 59,057 millions. SAPARD was meant to be implemented in the pre-accession period, but the most of the payments were provided in 2005 and 2006 (Table 4.1.1) due to the delays in setting up and management of the national Paying Agency. Moreover, the most of payments were directed to the first two measures – Agricultural enterprise development and Food and fishing processing development. Among these measures, funds were also directed to agricultural production, processing industry and investments in large farms and infrastructure with a goal of preparing large farms for the market economy competition once in the EU, often in conflict with the limits imposed to large farms by the national legislations in the NMS (as in the case of Hungary).
The innovativeness represented by the introduction of a second CAP pillar for Rural Development, which would have come together with new resources and a new model for the rural development policy, remained mainly on the paper. In the case of the NMS, a contradiction emerged from the EC indications, which promoted a decentralized and bottom-up approach to RDP, while the adaptation to the *Acquis* for the CAP introduction required the creation of a centralized management and control system in agriculture, focused on agri-food competitiveness and productivity (Nemes, 2003).

[61] Established by Council Regulation 1268/1999 in June 1999.
[62] MoARD (2005): Agriculture and Rural Development Operational Programme (2004-2006).
[63] NDRP, 2006.

Table 4.1.1: Commitments and payments of SAPARD programme

Measures	Commitment	Payment					Payment rate %
		2003	2004	2005	2006	Total	
Agricultural enterprise development	24,431	424	6,454	13,363	2,807	23,048	94
Food and fish processing development	18,348	358	4,559	8,109	3,670	16,696	91
Village development and reconstruction, protection and conservation of rural artefacts and cultural heritage	5,751	0	0	2,600	2,822	5,422	94
Diversification of activities	472	0	0	319	99	418	89
Development of rural infrastructure	14,183	694	3,341	5,806	3,558	13,399	94
Technical assistance	74	1	53	0	20	74	100
Total	63,259	1,477	14,407	30,197	12,976	59,057	93

Source: MoARD

The ARDOP was the successor of SAPARD, and it was endowed with more money (HUF 105,2 billions), which was not enough to cover the financial commitments of the successful applications (6 400 up to a total number of 11 158). The financial performance didn't improve from SAPARD, and minor rate of payments was recorded at the end of the program (90.5%).

The most of the 2004-2006 budget and the most of payments were, as in SAPARD, directed to measures related to competitiveness in agriculture (especially to agricultural investments), while rural development measures gathered 25.4% of the budget, and the most of valid contracts signed. At the opposite, LEADER+ obtained 4.3% of total budget, below the minimum 5% share prescribed by the EC. Moreover, the payments are lower in amount and slower when the beneficiary is not directly involved in agriculture (the case of multifunctional rural areas and rural development, LEADER+), and when the project are more complex and with a higher socio-economic impact (e.g. the expansion of rural income-generating opportunities).

Table 4.1.2: Commitments and payments for ARDOP 2005-2007

Priority	Budget 2004-2006	Number of valid contracts	Allocations for valid contracts	Number of payments	Amount of payments	Payment rate, %
1. Establishment of competitive raw materials production in agriculture	60,877	2,928	68,429	2,761	59,551	97.8
1.1. Support for agricultural investment projects	56,423	2,567	63,762	2,421	56,026	99.3
1.3. Structural support for the fishing sector	1,447	43	1,409	39	931	64.3
1.4. Start-up support for young farmers	1,848	280	1,967	267	1,838	99.5
1.5. Support for further training and re-training	1,159	38	1,291	34	756	65.2
2.1. Development of the sale and processing of agricultural products	14,947	149	15,435	139	12,983	86.9
3. Development of rural areas	26,754	3,181	27,387	1,804	20,104	75.1
3.1. Expansion of rural income-generation opportunities	3,836	366	2,839	279	1627	42.4
3.2. Development of agricultural infrastructure	12,646	372	12,990	362	11,293	89.3
3.4. Strengthening rural communities and preserving and improving natural and cultural heritage	5,696	243	5636	240	5,196	91.2
LEADER+	4,576	2,200	5923	923	1,988	43.4
4. Technical assistance	2,660	142	2,736	137	2,636	99.1
AVOP total	105,238	6,400	113,988	4,841	95,274	90.5

Note: Budget, allocations and amount of payments in million HUF (1EUR=265 HUF)
Source: MoArd

The NRDP, instead, was a temporary rural development instrument set up for the switch from SAPARD to post-accession rural development instruments (2004-2006) to help the administrative, financial and programming transition, and to complete the SAPARD payments. It was financed by the EAGGF Guarantee Section and it was based on specific transitional rules. It mainly covered commitments and liabilities undertaken by farmers for several years, and it included support measures in the form of reimbursements to farmers on the basis of prior applications. NRDP measures for 2004-2006 were allocated a budget of HUF 163 billion (available for use until the end of 2008), of which a total of HUF 25 billion was rescheduled for SAPARD projects and direct payments (direct farmer support).

In the current programming period 2007-2013, one third of EU total contribution to rural development goes to the NMS of which 48.8% is allocated to convergence, highlighting the case of overlapping measures with the cohesion funds. Hungary obtains 14% of the support for the CEEc (quite 50% is allocated to Poland), and it adopts the New Hungary Rural Development Program (NHRDP)[64] as Rural Development National Strategic Plans (RDNSP), which contains all the measures that were previously included in the ARDOP and in the NRDP. A National Rural Development Network (NRDN) is also introduced, in order to facilitate and manage the execution of NRDSP.
The NHRDP follows the division in four axes of the EU program:

Axis 1: improving the competitiveness of agriculture, food processing and forestry;

Axis 2: improving the environment and the countryside;

Axis 3: improving the quality of life in rural areas and diversification of the rural economy;

Axis 4: LEADER.

The most of the payments for the period 2007-2013 goes to Axis 1 (48%, HUF 8,577 billion,), followed by Axis 2 (31.5%, HUF 5,898 billion), for a total of EUR 18,701 billion for the whole period for the four Axis, including technical assistance. LEADER (Axis 4) obtains 5% of the whole amount. In comparison with the average values of the NMS, where the distribution of funds between Axis is more equilibrated (Table 4.1.3), the Hungarian funds allocation favours Axis 1 and penalized Axis 3 (measures related to the quality of life in rural areas), while in the EU-15 the highest share goes to Axis 2.

Table 4.1.3: Distribution or EAFRD Funding between Axes for NMS and EU 15, 2007-2013 (%)

Country	Axis 1	Axis 2	Axis 3	Axis 4
Hungary	48	32	14	5
Average NMS	40	38	20	5
Average EU-15	32	50	10	6

Source: own elaborations on DG Agri data

The NHRDP contains more than forty measures but the Ministry concentrates the most of the resources (three-quarters of the programme's funds) on six measures: in particular on the modernisation of agricultural enterprises and agri-environmental management, which will absorb about half of the support, respectively 41.3% and 13.6% of total expenditures (Figure 4.1.1).

[64] New Hungary Rural Development Program (2007-2013) (2007): http://www.fvm.hu/doc/upload/200702/nhrdp_070220.pdf (March 3, 2007)

Figure 4.1.1: NHRDP budget 2007-2013

Measure	Public expenditure		Own contributions, billion HUF	Total expenditure	
	billion HUF	share, %		billion HUF	share, %
Modernisation of agricultural enterprises	389.9	30.2	476.5	866.4	41.3
Agri-environment management payments	284.3	22.0	0.0	284.3	13.6
Adding value to agricultural and forestry products	60.8	4.7	113.0	173.8	8.3
Afforestation of agricultural land	64.3	5.0	27.5	91.8	4.4
Infrastructure related to the development and adaptation of agriculture and forestry	53.8	4.2	29.0	82.7	3.9
Main measures subtotal	931.3	72.2	741.7	1,673.0	79.8
Measures total	1,289.8	100.0	806.5	2 096.3	100.0
Share of expenditure, %	61.5		38.5	100.0	

Source: NHRDP

4.2 An overview on the Hungarian agriculture in transition toward the EU

Hungary covers an area of 9 303 000 ha, of which 83% used for agriculture, which had an historical role in Hungary, both under the Austro-Hungarian Empire and under the socialist system, when the sector offered subsistence for the thousands of farmers who remained in the countryside during the planned policy of heavy industrialization. At that time, agriculture was integrated into the planned economy and considered dependent from the cities, which were invested in heavy industrialization plans.

Hungarian agriculture was a "bright spot" in the declining Communist economic system. The country was an important producer and exporter of agri-food products, and even during the transition process the country trade balance remained positive. The agricultural sector was the second largest contributor to the State budget in 1980; it received a low level of public support in comparison with the other ex-satellite States, and offered subsistence to thousands of farmers. The sector was also interested in the introduction of embryonic forms of market (following Lange's market socialism), which determined the full functioning of the collective system, i.e. exchange channels which allowed some private products to be sold on the public market, moving away from simple self-consumption of overproduction (Kornai, 1986). Agriculture, including processing, trade and other industrial activities on large farms, produced 17% of GDP and employed about the same percentage of the labour force. However, also the agricultural sector was hit by the default of the centralized system based on distorted incentives, which characterized the years of the Soviet Union (Anderson et al., 2008). Thus, since the 1990s the agricultural share on GDP and employment fell, and rural regions were particularly affected (Debatisse, 1998): in the early 1990s, 45% of unemployed people lived in villages, especially in the lagging behind Eastern parts of the country. They were mainly unskilled labour previously employed in the cooperative

farms and in big state companies[65]. Moreover, in the transition process rural areas increasingly depopulated, because of the significant transfer of the active population from agricultural rural areas to other sectors and attractive job opportunities mainly located in the main cities. The transition process led to a reform of the public support to agriculture also in the CEEc: the high level of direct and indirect state support provided to both farmers and consumers in the pre-reform period encouraged production and spurred consumption. As a consequence, during the transition process, in Hungary agricultural production declined sharply (OECD Report on Transition Countries, 2002) following cuts in state support[66] and poverty increased, especially in rural areas[67].

The transition path toward a market economy was characterized by declining investments and productivity[68] also due to the end of soft budget constraint (Kornai, 1980) and the disruption of the terms of trade for producers, which was caused by the loss of the former common market (Macours et al., 2000). Moreover, inequality in living conditions spread, creating a *winner* and two *losers*: the capital and the main cities belonging to the first group, and rural areas and Eastern peripheries to the second.

Looking for the optimal and successful transition path (EBRD, 1997; WB, 1997), two main approaches emerged: big bang versus gradualism (Sachs et al., 1994; Roland, 2000).

According to the relevant literature (Csáki et al, 2004; Liefert et al., 2002; Swinnen et al., 2006), the reform of the agricultural systems of the transition economies has involved four main elements:

- market liberalization, after the end of the productive plans which asserted which goods were to be produced and their quantity, paying no attention to consumers' preferences;
- farm restructuring, which concerned the property status, management and organization, and required the launch of a privatization process, and land reform. Market liberalization can foster farm restructuring, as farmers can see an opportunity for a new activity, growth in productivity and profitability;
- change in upstream (supply of agricultural inputs) and downstream product (transportation and distribution) operations, capable of ameliorating the productive performance of all the actors of the agri-food chain;

[65] Data were provided by the National Labour Centre, Budapest.

[66] In 1990, public support for agriculture ranged from 5 to 10% of the GDP in most of the CEEc.

[67] The data reliability of the indicators of economic aggregations of the former regime is low due to the fact that farmers were overstating their production in order to meet the required numbers of the plan and to get support. On the other hand, it must be added that indicators such as GDP were estimated with a different methodology during the socialist system.

[68] We must take care of the low accountability of the statistics and data provided before the system change. Moreover, some indicators were calculated in a different way (i.e. MNP – for GDP – didn't include services).

- the creation of market - friendly infrastructures as institutions and services, including financial and banking services; market analysis; a commercial law capable of stating clear property rights, enforcing contracts, and helping to solve disputes. All of these deeply influence the performance of the upstream and downstream operations.

Supporters of the shock therapy[69] asserted that the success of the reforms was deeply influenced by its timing. Therefore, all the necessary interventions had to be introduced at the same - and for the shortest - time. In the CEEc, these reforms were introduced at a different pace, and with different results, as evidenced by the World Bank (2002) which marked Hungary as the "best reforming performer" with 8.8 points up to 10, followed by the Czech Republic and Estonia. The reforming process reflected on the agricultural performance: between 1995 and 2002, the role of agriculture declined on GDP (from 6% to 4%), employment (from 8 to 6.2%), consumption (from 32.4 to 27%) and export (from 20.3 to 6.8%). At the opposite, the share of agriculture on investments increased, from 2.9 to 5.5% (Table 4.2.1), especially since 1998, with the introduction of the EU pre-accession funds.

Table 4.2.1: Share of agriculture in the Hungarian economy, 1995-2002

	Share of agriculture in				
Year	GDP	Consumption	Exports	Investments	Employment (%)
1995	5.90	32.40	20.30	2.90	8.00
1998	4.90	30.30	10.50	3.60	7.50
2000	4.60	27.60	6.90	4.70	6.60
2002	4.00	27.00	6.80	5.50	6.20

* GDP, Consumption, Export, Investments at current prices, %
Source: own elaborations on HCSO data.

The success of the process of transition was deeply linked to the introduction of a land reform[70], which would have given back the land belonging to the former collective and State farms to the farmers, opening the way to a modern and more efficient production system. In Hungary this process was deeply influenced by the weight of the near history and from political pressures coming from the re-established populist and conservative party (Smallholders' Party). Therefore, even today the Hungarian agricultural sector is characterized by a highly fragmented farm structure, and by dualism. In fact, in the early 1990s, the first democratically elected government adopted a land reform aimed at dismantling the cooperative production system and returning the land to its former owners. The outcome of the reform was the creation of plots which were too small and often not contiguous, thereby undermining productivity. The original objective of land reform was to "*unify the principles of landed property and the use of lands*" (Szűcs et

[69] From the so called big bang approach, supported at that time by the World Bank (WB) and several experts.
[70] This is a feature that the development in transition Countries shares with the development policies in other Less Developed Countries.

al., 2004) but this goal was largely abandoned in favour of the principle of restitution. The restitution legislation provided for a system of land auctions in which all people whose lands were appropriated could, after claiming government issued vouchers, reclaim lost properties[71]. Applications for these vouchers had to be sent to the National Office of Restitution (Országos kárpótlási és kárrendezési hivatal-OKKH), which obliged collective farms to create a compensation fund for farmers who got their land confiscated in the former Communist system.

In addition, a new law on cooperatives was adopted. The law consisted of two parts. The first specified how cooperatives should be transformed, while the second specified how *genuine* cooperatives should behave (Swain, 1994). The legislation aimed at increasing the number of people who could reclaim land from collective farms, and to accelerate the dismantling of farm cooperatives. A bankruptcy legislation for the cooperatives and private farms was introduced, together with a ceiling for the possession of agricultural land (300 ha), and the ban for legal entities (various types of companies) to own land.

The outcome of the reform measures was the creation of more than one million new land owners, with holdings averaging less than two hectares. The small size of these holdings negatively affected productivity, as in the reform period the need for investments and modernization was high, and small farmers' ability to borrow was low. In 1998, the 90% of agricultural land was privately owned, but quite 40% was farmed by companies, organizations and large ventures (also called integrators) which cultivated land under leasing arrangements to be set yearly, under discretional parameters. Thus, as a result of the privatization process, land became a source of complementary income for thousands of small and part time farmers.

After a period of some uncertainty, a dramatic reduction in the number of farm cooperatives occurred[72]: in 1990, cooperatives covered 5 147 thousand hectares of land, whereas individual farmers reached 1 289 thousand hectares circa. In 2001, the situation dramatically changed: cooperatives owned 855 thousand hectares of land and individual farmers 4 196 thousand hectares circa (Table 4.2.2). At the opposite, individually owned land increased from 6% (on total used farmland) in 1990 to 51% in 2002 (Table 4.2.3). According to Debatisse (WB, 1998), the initial assets of collective farms were distributed among active members (41.5%), to pensioners (38.7%) and to people who left the farm earlier (20%). The restructured cooperatives often transformed into services cooperatives, marketing types of cooperation (renting machineries, labour). Instead, privatization of state farms was completed in 1996, when 93 up to 121 state farms were privatized, and 47% of their land was used for compensation.

[71] The process of restitution went together with the agricultural privatisation in Hungary.
[72] At the beginning of the reform process just 7-10% of members decided to leave the cooperative.

Table 4.2.2: Land distribution according to property (000 hectares)

	1990	**1993**	**1995**	**1999**	**2001**
Cooperatives	**5 147.1**	3 931.3	2 208	1 494.5	**855**
Economic Organizations	8 014.4	7 037.3	4 801.2	4 114	3 640.1
Individual farmers	**1 288.8**	2 204.6	4 034.7	4 689	**4 195.6**
Partnerships	2 867.3	3 106	2 593.2	2 619.5	2 785
Other	n.a.	6.1	467.1	500.1	1 467.7
Total	**9 303.2**	**9 303**	**9 303**	**9 303.1**	**9 303**

Source: Szűcs et al., 2004

Table 4.2.3: Individually Used Farmland in CEEc (in % of the total)

Country	1990	2002
Bulgaria	13	98
Czech Rep.	5	26
Estonia	6	100
Hungary	6	51
Poland	77	85

Source: Csáki et al., 2006

Apart from the limits described above, the consolidation of the agricultural land market was limited by the market sale regulations introduced. In the first years after the land reform, legal limitations (up to three years) were set for land sales in case of land received through compensation or from shares of collective farms, and land became alienable only in 1996. Foreigners were banned from buying land; this provision had to expire in 2011, but the Hungarian government asked the EC for an extension till 2014. In fact, as land prices in Hungary are still lower than in the EU-15, Hungarian authorities fear that a financial assault from foreign investors would occur, in a period when land represents one of the most constrained resources worldwide. In order to be allowed to purchase land, foreign citizens will have to prove that they have been residents for at least three years; they actively farm for a living; they pay taxes; that the Hungarian farmer renounced its pre-purchase option. In 2009 (Table 4.2.4), the highest land prices were detained by the vineyards in Northern Hungary where the famous Tokaj wine is produced (EUR 6,769/ha) and in Southern Transdanubia, characterized by the Szekszárd and Villány wine regions (EUR 4,387/ha), where also the highest prices for arable land is paid (EUR 2,201/ha).

Table 4.2.4: Land price* by region and use in Hungary, 2009

Region	Arable land	Grassland	Vineyard	Orchard
Central Hungary	1,699	1,244	1,765	2,422
Central Transdanubia	1,592	949	4,051	3,035
Western Transdanubia	1,584	1,016	2,256	3,863
Southern Transdanubia	2,201	1,060	4,387	3,667
Northern Hungary	1,651	432	6,769	4,383
Northern Great Plain	1,662	550	1,477	3,124
Southern Great Plain	1,429	779	1,665	1,780

* in EUR/ha at the 2009 average HUF exchange rate (1 EUR=HUF 280.58). Source: FADN/AKI

When Hungary joined the EU, collective forms of farming used half of the productive land, generated 46% of the gross margin according to the Hungarian Farm Structure Survey (2003) and accounted for the widest cultivated area among the EU-25 members. However, compared to the other members of the EU, Hungarian cooperatives are now undercapitalized because of the small amount of capital provided by the members and the difficulties in obtaining credit from the banks, since rural credit lines are not well developed. The above provisions mined agricultural development, creating obstacles for moving from subsistence agriculture into a potentially productive system. Moreover, the segmentation of land property and the unclear leasing conditions set in the previous period characterized by expanding economy when young and skilled people were moving away from rural areas, constituted an unfavourable ground for accessing SAPS payments and for applying to EU co-financed investments, due to the low skills and entrepreneurial vocation of aged farmers. Thus, a "dual" farming structure emerged in Hungary, where both ends of the farming are still suffering by conversion problems: small farms are generally too small, farmers are inexperienced and lack resources, while the large ones still have some heritage of the collective farming system with some embedded inefficiencies (Csáki et al, 2010).

A different situation characterized the food industry, which was promptly privatized though liquidation attracting foreign direct investments and working capital (Debatisse, 1998), in order to prompt reconversion and modernization though foreign expertise and technology. Thus, already in 1996, 65% of large food companies were controlled by foreign investors, and several multinational companies entered the market: the favourable geographic position of Hungary could help opening export routes to Eastern Europe, Russia and Central Asia. At the end of the 1990s, the food processing industry still reflected the orientation of the past economic regime: cereals and starch were quite neglected, while the attention was focused on animal production, which declined in the last two decades and was not able to organize though merging to overcome the past over-capacity. In particular, production concentration and cooperativism remained very weak in the fruit and vegetable sector: the compensation process based on vouchers allowed the former workers and managers to buy some processing plants, but they

lacked financing power to make the investments needed to modernize the sector, and to be competitive in the EU common market.

4.3 After the EU accession: visions and reality for the agricultural sector

At the time of the EU membership, the agricultural transition toward the EU was still an unfinished process, especially in the agricultural sector. Thus, several answers (and funds) were awaited by the CAP and the Cohesion policy. Moreover, the enlargement in 2004 had a relevant impact on agriculture: the NMS took 7 million farmers to the EU farmers population (6 millions) and 55 million hectares of agricultural land (+40%), but production in the EU-27 expanded much less (by about 10 - 20 % for most products) confirming the potentiality of developing agriculture in the NMS. Also, the regional disparities in the EU doubled: p.c. GDP decreased by 12.5%, and the share of population living in Convergence areas increased to 25%.
The inclusion of Hungary in the CAP implied the introduction of new provisions and the gaining of new opportunities: the access to the single market in the EU, relatively stable commodities prices, direct payments to be phased in gradually in order to reach the full EU level, and rural development measures. At the same time, applying the complexity of the CAP rules to the NMS took other difficulties (i.e. need for the introduction of managing and paying institutions), and uncertain from an equity point of view (i.e. payment per hectare based on the historical yields). In the agricultural sector, the positive result gained by Hungary in the first years of the transition process didn't last long: even by 2003, right before the EU enlargement, several problems remained unsolved. In fact, in 2004 several "transition phenomena" (Swinnen et al. 2006) still characterized the Hungarian agriculture and food industry, mainly related to land property, dual farm structure, productivity, food chain contracts, innovation. Thus, the EU membership was expected to play a relevant role for the overall development of the country and for the agricultural sector in particular, with the CAP introduction.

Figure 4.3.1: Regions of Hungary

Source: HCSO

Nowadays, the main agricultural areas of the country are the Western Transdanubia, and the Northern and Southern Great Plains.
In 2009, the agricultural population[73] accounted for quite 10% of the total population of 10 million people. After the fall experienced in the transition process, right before the EU membership, the share of agriculture on GDP was 4.3%, and then it progressively declined, falling from 3.7% in 2008 to 2.5% in 2009. Agricultural (official) employment declined more gradually, ranging between 5.5% in 2003 to 4.6% in 2009. Instead, investments in agriculture showed a contrasting trend: from 6.1% of GDP in 2003, they declined till 3.7% in 2007, and recovered in the following years, reaching 5.6% in 2009 (Table 4.3.1). The role of the food industry in the national economy is less relevant in comparison with agriculture: the share of the food industry on employment and GDP declined between 2003 and 2009, respectively from 3.9% to 3.5%, and from 2.7 to 2.1, while in the same period investments fell from 3.6% to 2.5%.
Also as a consequence of the high volatility which characterized commodity prices between 2007 and 2008, high inflation interested food products from 2006 to 2008, realigning to the rest of the economy in 2009.

Table 4.3.1: Contribution of agricultural and agri-food industry to the Hungarian economy

	Share of agriculture in			**Share of food industry in**			**Consumer price index (previous year=100)**	
Year	Employment	GDP	Investments	Employment	GDP	Investments	Food products	Total
2003	5.5	4.3	6.1	3.9	2.7	3.6	102.7	104.7
2004	5.3	4.1	4.3	3.6	2.4	3.7	106.5	106.8
2005	5	3.6	4.5	3.6	2.2	3.6	102.5	103.6
2006	4.9	3.5	4.2	3.6	2.1	3.1	107.7	103.9
2007	4.7	3.4	3.7	3.4	2	3.2	111.5	108
2008	4.5	3.7	4.7	3.3	1.9	2.5	110.2	106.1
2009	4.6	2.5	5.6	3.5	2.1	2.5	104.4	104.2

Source: own elaborations on HCSO data

These data reflect the difficulties emerged in the reorganization process that interests the Hungarian agri-food chain after the access to the EU market. In fact, competitiveness increased both in prices (with the cheaper Polish and Romanian food alternatives) and products (quality certification and traceability of typical food products coming from the EU-15). In this panorama the Hungarian farmers and food producers, which lacked a proper organization after the system change, were subjected to the unfavourable conditions set by the newly introduced vertical food-chain relations, dominated by hypermarkets and multinational agro-processing companies, and the concentrated regional procurement system, which increased the requirements for food suppliers while

[73] According to FAO, the agricultural population include all persons depending for their livelihood on agriculture, hunting, fishing, or forestry. This estimate comprises all persons actively engaged in agriculture and their non-working dependants.

keeping prices down, even under the production costs. The decrease in price competitiveness is also linked to the difficulties to increase land and labour productivity (after the end of the positive effect of initial fall in agricultural employment which moved to other sectors), due to the limitations imposed by a dual production system where both small farmers and big Hungarian companies have limited access to credit. The former ones are hindered by their socio-structural characteristics (aged, lower skills, low profit motivation), the others by unfavourable legislation which favours small Hungarian farmers.

The EU enlarged market offered also new opportunities to Hungary, which became one of the main exporters of agricultural and food products, in value, among the NMS (Table 4.3.2): food export increased by 148% between 2000 and 2007, reaching quite USD 4,500 million in value. After 2003, import growth in nominal values increased twice faster than export, in comparison with that of 2000-2003, and reached USD 3,133 millions. Thus, Hungary was able to maintain its record among the NMS, showing a positive and increasing (+17.6%) agricultural trade balance between 2000 and 2007[74]. In the same period, trade balance in the EU-10 was negative, with the value of agri-food import which doubled export. Nominal values of export and import increased, and while agri-food export was characterized by agricultural raw materials, import concentrated on processed products.

Table 4.3.2: Agri-food and beverages export and import in 2000-2007, million USD

Export	2000	2003	2007	2007/2000 (%)	2007/2003 (%)
Hungary	1,808.51	2,549.16	4,493.20	148.44	76.26
EU-10 total	3,808.51	4,552.16	6,500.20	70.68	42.79
Import	2000	2003	2007	2007/2000 (%)	2007/2003 (%)
Hungary	652.23	1,188.16	3,133.04	380.36	163.69
EU-10	7,968.89	9,726.28	14,310.50	79.58	47.13
Trade balance	2000	2003	2007	2007/2000 (%)	2007/2003 (%)
Hungary	1,156.28	1,361.00	1,360.16	17.63	-0.06
EU-10	-4,160.38	-5,174.12	-7,810.30	87.73	50.95

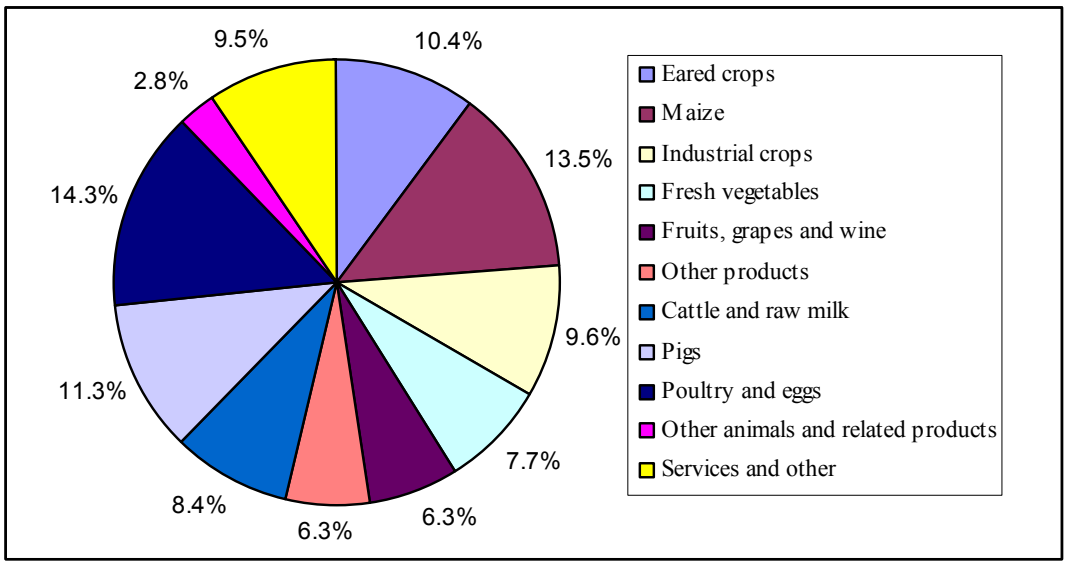
Source: own elaborations on UN data

In 2009, the main Hungarian export products were cereals (18% of total agricultural export, composed for the 2/3 by maize), meat (13%), oilseeds (10%), and animal feed (8%). The main export markets for Hungary were Germany (14%), Romania (14%) and Italy (11%, in first position for wheat and maize). Instead, Hungarian agricultural and food import in 2009 was composed of animal feed (10%), meat (9%), beverages, spirits

[74] The only other country showing positive agricultural trade balance before and after the EU enlargement was Bulgaria, but a much lower value levels.

and vinegar (6%). The main trade partners were Germany (22% of import), Poland and the Netherlands (both at 12%).
Arable land covered about 4.5 million hectares in 2009 (falling from the quite 6 million ha in 2008), 37% of which covered by cereals (2.9 million ha). Forests covered 24.4% of the cultivated area (1.9 million ha) followed by grassland (13%, 1 million ha) and orchards (1.3%, quite 100 000 ha). In 2009, the land was farmed mainly by business organizations (45%), and 36% by individual farmers.
The production concentrated in three sectors: arable crops (cereals, maize, soft wheat) and oil seeds; horticulture; animal breeding. In 2009 (Figure 4.3.2), the Hungarian gross agricultural output was mainly composed of crops (53.7%), followed by animals (35.8%) and services (9.5%).

Figure 4.3.2: Hungarian gross agricultural output, 2009



Source: own elaborations on HCSO data

Hungary joined the EU during the most important reforming period of the CAP, thus the demanding change in agricultural policy was conduced in a climate of uncertainty, and great expectations. The Hungarian path towards the EU membership led to a change in support to agriculture and rural development, both in its structure and amount. Moreover, it required the setting up of an institutional framework to implement the CAP (first of all the creation of an agency for the coordination of market interventions), and adjustments for a better coordination of agricultural and regional development support funds (Debatisse, 1998). A critical pre-accession point (Csáki et al, 2010) was the support to agricultural production: in the case of Hungary the producer support estimate (PSE) was similar to the EU levels[75], but it was in the form of excessive price and market supports which distorted internal prices and kept inefficient producers. Thus, the

[75] As a difference from Poland and Slovakia, where it was lower, and Slovenia, where support was higher than in the EU.

EU accession was accompanied by increases in producer prices, which favoured crop productions (thanks to the former EU intervention price for the main cereals) but increased the production costs for pig and poultry producers, as the price of cereals for feed increased. It must be remembered that the EU intervention prices work differently from the former Hungarian guaranteed prices. In Hungary, guaranteed prices worked at the farm level, while in the EU, intervention is at the wholesale level only (wholesale traders, marketing cooperatives, and processing firms), and thus only wholesalers can put farmers' grains in intervention stocks. In this way, several Hungarian farmers could not access them because ineligible according to the conditions, e.g. the size of their farms, the tax reporting, the quality of wheat (Debatisse, 1998). Then, the Hungarian crop production showed delays in restructuring especially with regard to the logistic (as in Southern Italian regions producing durum wheat): transportation was costly in comparison to neighbouring countries, and infrastructural endowments for storage are lacking. By the way, during the 2004/2005 exceptional crop year, over five million tonnes of grain were procured by the EU in Hungary (the 50% of the total intervention purchases in the EU): this solution helped stabilizing crop farmers' incomes, but damaged animal producers as grain-feed continued rising after the EU accession.
Compared to 1997, the performance of the different agricultural productions changed notably year-to-year, with a generalized downward trend and some peaks in between. Cereals followed a decreasing trend with the exceptional boom in 2004, whereas fruits recovered between 2000 and 2004 and 2006 after significant drops in the years 1998 and 2005. Animal production showed a light recovery in 1998 and 1999, but a decrease in 2006. After a slight increase in 1998 and a good performance in 2004, the whole agricultural output declined in 2006 (Table 4.3.3).

Table 4.3.3: Percentage of change in agricultural production (previous year =100)

	1997	1998	2000	2003	2004	2005	2006
Cereal	100	93.6	93	74.6	194.4	95.3	89.1
Veg./Horticultural	100	120.9	86.7	98.0	100.1	83.1	110.3
Fruit	100	95.7	122.4	126.5	135.6	62.7	114.0
Crop output	100	101.4	87.2	89.4	156.0	89.6	96.6
Animals	100	103.4	105.3	96.1	88.2	100.6	98.6
Animal products	100	103.6	102.4	100.0	97.2	100.0	97.4
Animal output	100	103.5	104.3	97.5	89.9	100.4	98.2
Agricultural output	100	102.0	94.3	92.9	124.1	92.9	97.0

Source: own elaborations on HCSO data

Apart from the change in support to agriculture, according to Csáki (2008) and Csáki et al. (2004), the other reasons of the fall in production are the negative impact of institutional disruption, the simultaneous reduction in agricultural production and food consumption subsidies, price liberalization and the use of old machinery. Liefert et al.

(2002) point out that, due to the low and not really reliable information available to Western experts at the beginning of transition on the economic situation of the CEEc, their studies underestimated the occurring fall in output. Moreover, Macours et al. (2000) underline the importance that the huge reduction in terms of trade of agriculture (between 40% and 80% in the transition period) played on the fall in output.
Although the crop sector gathered better results from the change in support, since the EU accession the production of the three main cereals – maize (the most important), wheat and barley - decreased till 2007, and then increased again in 2008, and slowed down in 2009 (Table 4.3.4). Both the production of sunflowers and rapeseed increased between 2005 and 2009, respectively by 13.3 and 105% circa. By the way, Hungarian crops play a main role in the EU-27: in 2009, Hungary contributed to the EU production with 13% of maize, 3% of wheat and 19% of sunflowers (MoArd).

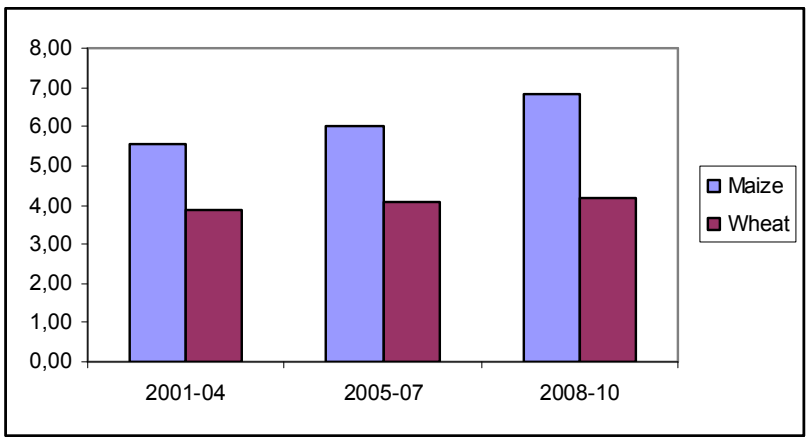
Table 4.3.4: Production of cereals and oilseeds in million tonnes, 2005-2009

	2005	2006	2007	2008	2009	Variation (%)
Maize	9.1	8.3	4	8.9	7.5	-17.6
Barley	1.2	1.1	1	1.5	1.1	-8.3
Wheat	5.1	4.4	4	5.6	4.4	-13.7
Sunflower	1 108	1 181	1 060	1 468	1 256	13.4
Rapeseed	283	338	496	655	579	104.6

Source: own elaborations on HCSO data

Another indicator of the performance of the agricultural sector is productivity. As a difference from some NMS (Poland, Romania), cereals yields increased in Hungary after the EU membership (+20%) which performed the best after Slovenia, going close to the EU-15 average value. In particular, the yield of maize increased from an average 2001-2004 value of 5.6 tonnes/ha to 6.8 (Figure 4.3.3), while the yield of wheat increases less, from 3.9 to 4.2 tonnes/ha.

Figure 4.3.3: Yields of maize and wheat (tonnes/ha)



Source: own elaborations on FAO (2012)

For animal and dairy production, the allocation of production quotas based on historical data (2000-2002 average) negatively affected the sector, due to the low productivity level of the numerous small farms which were created by the land reform (aimed at contrasting the creation of large and more productive farms), and still under restructuring at the time of the CAP introduction.
Animal production declined (Table 4.3.5), with important differences between the types of products. The highest decline was recorded by beef (-5.7%) and pigs (-3.6%) which lost respectively 5 thousands and 22 thousand tonnes. Instead, sheep and fish production increases by 5%, while cow milk lost 9.4% between 2005 and 2009.

Table 4.3.5: Animal for slaughter and products in million tonnes, 2005-2009

	2005	2006	2007	2008	2009	Variation (%)
Animals for slaughter, 000 tonnes	1 381	1 372	1 396	1 400	1 367	-1.0
of which beef	88	84	89	88	83	-5.7
Sheep	19	20	21	20	20	5.3
Pigs	608	613	643	620	586	-3.6
Poultry	640	632	616	646	649	1.4
Fish, 000 tonnes	19	21	21	20	20	5.3
Cow milk, million litres	1 878	1 796	1 794	1 792	1 702	-9.4

Source: own elaborations on HCSO data

Animals accounted for 36.8% of the gross output of agricultural production in 2009. In that year, the sector was mainly represented by pigs, poultry breeders and milk producers. The most profitable activity was the poultry sector, till the bird flue: poultry and eggs account for 14.3 % of gross output, followed by pigs (11.3%) and cattle and milk (8.4%). These numbers mask the decline in relative importance of the Hungarian livestock sector, with negative trends of output and productivity that characterized the transition process. Taking pigs as an explicative example, there were quite 10 millions heads 20 years ago because of the high subsidies, while today they stop at 4 millions heads, while the number of cattle and sheep continues to decrease. After 2004, imports of live pigs and pork increased significantly (the quantity imported in 2006 was three times higher than that in 2003) mainly by Czech Republic and Poland, as a result of the decrease in domestic stocks. The production fell down in 2007 and 2008 because smaller farmers, responsible for the 2/3 of the production, ceased the activity which was no remunerative anymore. The few producers remained are bigger (due to the process of concentration followed to the fall in producers' number) and they are profitable.
Farmers dealing with arable crops were the better off ones, especially after the EU membership; the sector is characterized by large farms endowed with relatively good equipment and able to exploit scale economies.
Farmers dealing with horticulture suffered from the shocking fall in production due loss of subsidies, and chronicle disorganization. In fact, unlike other UE-15 Countries, Hungarian horticultural producers don't gather in producers' organization, which would

give them better bargaining power with the handlers and the representatives of big retailers, resulting in higher incomes. The problems are mainly linked to the remuneration of the products, not to fruit production, which showed a positive trend in the pre-accession period and it expanded further after Hungary joined the EU in 2004. In 2009, fruit, grapes and wine accounted for 6.3% of gross output. Fresh vegetables accounted for 7.7%, and other vegetable products for 6.3% (HCSO, 2010).
The dual farm structure persisted in Hungary even after the EU membership (Table 4.3.6): large farms (> 100 ha) dominate land use, and their area increased from 59.7% in 2003 to 65.5% in 2007. Instead, small farms (< 10ha) decreased their share on total UAA, from 14.9% in 2003 to 10.7% in 2007.

Table 4.3.6: UAA and share in land area by farm size group

	2003		2005		2005	
	UAA	% total UAA	UAA	% total UAA	UAA	% total UAA
< 10 ha	648 620	14.9	556 730	13.0	454 280	10.7
> 100 ha	2 597 810	59.7	2 640 570	61.9	2 768 900	65.5

Source: own elaborations on Eurostat

At the same time, the most of the Hungarian farms (80% of the total) owns less than 2 hectares, while farms over 100 ha represent only 1% (Table 4.3.7), and little change in these proportions occurred after the EU membership.

Table 4.3.7: Number of holding by farm size group

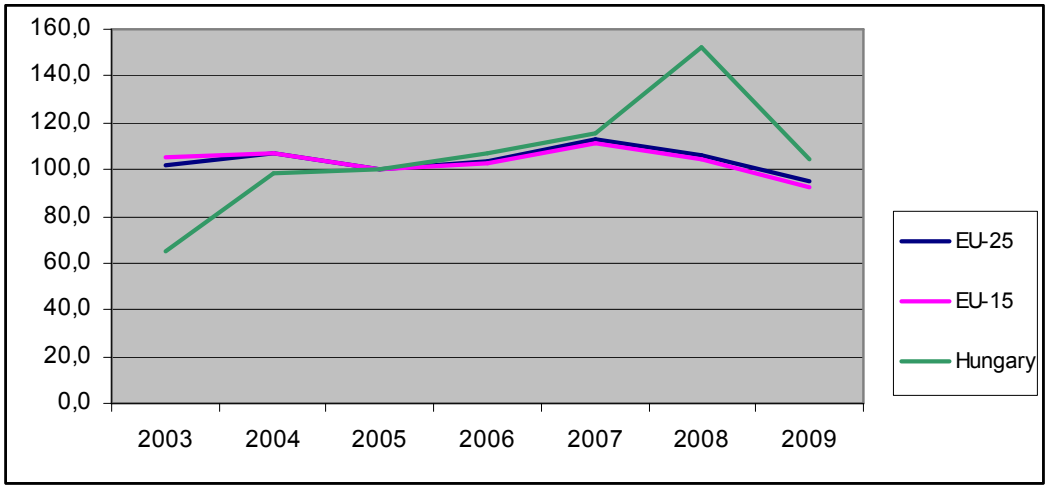
	2003	% on total	2005	% on total	2007	% on total
< 2 ha	566 660	79,6	531 430	80,2	452 340	79,9
> 100 ha	5 480	0,8	6 040	0,9	6 490	1,1

Source: own elaborations on Eurostat

The major impact of EU accession was on farm income in Hungary, which more than doubled in nominal terms: gross farm income[76] increased from 300 EUR/ha in 2003 to more than EUR 700/ha in 2008, as a result of the CAP subsidies and the prices adjustments to the EU level (Csáki et al., 2010). The index of agricultural income (based on the real income of factors) calculated by Eurostat shows that before 2005, Hungarian farmers' incomes grew but remained lower than the EU-15 and EU-25 ones. Instead, since 2005 Hungary performed better than the EU-25 and the EU-15; the index reached 152.2 in 2008 and then declined in 2009, still above the 2005 value.

[76] Gross farm income is calculated as: total output – total intermediate consumption + balance of current subsidies and taxes (FADN data).

Figure 4.3.8: Index of agricultural income, 2005=100



Source: own elaborations on Eurostat data

CHAPTER 5

MAPPING AREAS FOR BETTER POLICY EVALUATION: AN ANALYSIS OF HUNGARIAN RURAL AREAS

5.1 A background scenario for analyzing rural areas in the NMS

Over the last decade, policy monitoring and evaluation surged to the attention of the European agenda, according to the internal and external challenges the EU had to face:
- the effects of the current international financial crisis, which deeply affected the European economies;
- the possible enlargement to the economic and politically instable[77] Western Balkans;
- the evaluation of the CAP and Cohesion policy after the enlargement to ten countries from Central and Eastern Europe.

In particular, the "return to Europe" of the NMS was characterized by the troubled heritage of 20 years of outstanding transition: lower p.c. GDP; higher share of the agricultural sector on the economy in comparison with the EU average; increase in regional inequality, mainly driven by the persisting backwardness of agricultural and rural areas. The EU membership offered them opportunities as well as challenges, given the typology and intensity of interventions required to catch up. At the same time, a redistribution of EU budget from former beneficiaries to the NMS was introduced to finance the Cohesion policy and the CAP: in fact, at the time of the EU membership, all the regions of the NMS belonged to the Convergence area, being their p.c. GDP lower than 75% of EU average. No surprise that the enlargement was accompanied by discussions on the current programming period budget, and by claims for policy-renationalization in sensitive sectors[78]. Therefore, in order to gather support for prosecution of the enlargement strategy, the European Commission awaited successful results from the evaluation of the first five years of EU membership (EC, 2009). However, these results did not happen, particularly in countries where the agricultural sector still plays an important role and drives the process of internal divergence within the EU (Monasterolo, 2008). In particular, the GDP growth which interested the NMS rural areas showed that the lack of convergence was deeply influenced by spatial and socio-economic structural features such as subsistence farming, social exclusion and vulnerability, remoteness.

Considerable progresses were made in assessing the impact of policies on agricultural and rural areas, and numerous indicators were introduced to evaluate the CAP and Rural Development Policy, and their contribution to the convergence. The EU has introduced the Common Monitoring and Evaluation Framework (CMEF), which provides a single

[77] Albania, Bosnia and Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia, as well as Kosovo under UNSC Resolution 1244/99. These Countries present a lower level of development in comparison with EU average.

[78] Still in 2003, severe op position to the enlargement (mainly because of the fear of losing a large amount of EU funds) came from France and Spain.

framework for monitoring and evaluation of all rural development interventions for the programming period 2007-2013.
Despite this, the first analysis on the results of the measures financed by the CAP evidenced deficiencies in institutional planning and implementing abilities, together with an insufficient level of targeting policies and payments (Mantino, 2010). Amongst other reasons, previous analysis (Monasterolo, 2010) on several case studies from the CEEc highlighted a limited knowledge of the local reality in the areas for which the intervention was prescribed. In the NMS, the characteristics of the most backward areas were insufficiently analysed and addressed by the policies enacted (Csáki, 2009), and limited data availability and accountability at a sub-regional level presented an obstacle. At the same time, agricultural and rural areas in the NMS host the highest percentage of poverty (Bertolini et al., 2008): here the policies introduced barely addressed the specific problems of the composite European reality (Csáki et al., 2010). In fact, the growth path which interested the NMS especially in the EU pre-accession period was less evident in rural areas, which showed instead increasing divergence in the socio-economic conditions with rural areas in the EU-15. Although a dynamic analysis of the evolution of the living conditions in rural areas in the NMS and in the EU-15 would be very important to understand the evolving socio-economic scenario and the policy impact, it is still complicated by the lack of a common definition of rurality, whose introduction is hampered by technical (availability of statistical information) and often by political reasons (Hubbard, 2009). In fact, a sounder identification of rural areas (which are now overestimated in some Countries and underestimated in others) would lead to a redefinition of policy measures and, accordingly, to a redistribution of funds.
The results obtained by Anania et al. (1995) and Fanfani et al. (1999), which evidence the importance of mapping the territory for a better identification of rural areas and their evolving characteristics, provide a methodological contribution for the identification and description of rural areas, in order to overcome the several limits imposed by the currently used area classification methodologies. This approach allows us to introduce new dynamic modes of classification of rural areas, focused on the regional and local reality, which can contribute towards increasing the policy effectiveness, decreasing resource dispersion (economic, physical, human), and reaching efficient results in the medium to long term. The final outcome is the contribution to drafting better targeted policies, able to address the needs of a specific territory.
The application of the revised typology of rural areas illustrated in the next pages is able to catch the changes occurred on agricultural and rural areas before and after enlargement, providing a better understanding of the effects the EU membership for Hungary at the county level. I have chosen this country among the NMS because of the importance (96% according to the OECD methodology) of the rural areas, and given the historical socio-economic role played by agriculture.
Therefore, this chapter will:
- highlight the advances in the conceptualization of rurality and the multifunctional nature of rural areas;

- assess the statistical and methodological requirements, and provide an updated overview of the methodologies used for the identification of rural areas;
- define the main challenges in monitoring and evaluating rural areas, compare the main methodologies used in the EU and discuss the EC choice for the CMEF;
- introduce an improved typology of rural areas through the construction of a dataset of relevant variables according to the current agricultural, rural development and environmental sustainability issues, looking at the mixed case study approach (Terluin et al., 2011) as an evaluation alternative;
- contribute to the analysis of the EU membership for Hungary, identifying the changes occurred before (2003) and after (2007) the enlargement at the county level, using multivariate statistics (principal components analysis, PCA; cluster analysis, CA). The specific area's structural, dynamic socio-economic and agricultural characteristics are considered when selecting relevant variables;
- test the results of the CA with the Discriminant Analysis (DA), another classification method which allows us to rank counties according to their level of rurality after having identified the discriminant variables (backward regression was used to identify the predictors).
- understand whether the implementation of these reforms reveals a persistent discrepancy with the goal of eliminating regional inequality, which is a stated objective of the European policy of cohesion, looking at the Hungarian case study. In fact, Article 158 of the Treaty establishing the European Community states that "in order to promote its overall harmonious development, the Community shall develop and pursue its actions leading to the strengthening of its economic and social cohesion. In particular, the Community shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas."

5.1.1. In search for a shared definition of rurality

Several attempts were made by sociologists and economists to define rurality, focusing on the determinants of localization of economic activities. Examples can be found in the theory of growth poles (Perroux, 1955), the centre-periphery model (Friedman, 1972), the cumulative causation (Kaldor, 1970) and, more recently, the new economic geography (Krugman, 1991). All these approaches view rural areas as dependent, or residual from urban ones (Bertolini et al., 2008). Every European country has its own definition of rurality, influenced by the national perception of the elements that characterize rural areas, and affected by the difficulties in providing reliable disaggregated data.
The concept of rurality has been initially analyzed with a sectoral approach (and mainly considered in its linkages with agriculture), and only lately a territorial approach has been introduced, in order to take into account the multidimensional and complex reality of rural areas. In developing countries, the sectoral (agricultural based) approach still prevails: rural areas and rural households are still mostly exclusively identified with

their main economic activities, i.e. agriculture, forestry and fishing. Instead, in the EU a territorial approach developed, and rural areas started to be also spatially and geographically analyzed, e.g. in their relation to the market and services (low access), distance to main cities (long), and how these characteristics affect the socio-economic and demographic conditions (i.e. low population density, unemployment, poverty, migration and depopulation).

This change in perspective came parallel to the evolution of a specific policy for rural development within the CAP. Rural Development (RD) was not a priority in EU policies for a long time, and remained overshadowed by strong CAP price support. From 1975, when the first structured interventions in the EU for mountainous and disadvantages areas were enacted, rural areas were provided partial, insufficiently funded and scarcely coordinated provisions. Only after Agenda 2000, RD was endowed with its own Fund, and become the second CAP pillar, even if due to the imbalance of funds allocation, it could be better addressed as a stool. The development of a comprehensive EU Rural Development Policy in the golden years of globalization introduced a new perspective for the analysis of rural areas, whose role, characteristics and potentialities were not linked anymore to agriculture only (Table 5.1.1). In particular, the conceptualization of rural areas provided by the endogenous and neo-endogenous growth models opened the way to the development of the participative and territorial based LEADER approach.

Table 5.1.1: Rural areas in the agricultural and Rural Development perspective

	Agricultural	Rural Development (RD)		
		Exogenous development	Endogenous development	Neo-endogenous development
Core concept	Rural areas and incomes depends on farming	A competitive farming sector is not the sole condition for viable and attractive rural areas		
Key determinant	Agricultural support policy	Economies of scale and concentration	Developing human capital from local resources; bottom-up approach	Development from local / global forces interaction
Driver of growth	Agricultural productivity and investments	Localized growth poles (external drivers of growth)	Local initiative and enterprise	Globalisation, knowledge economy, open market
Function of rural areas	Food production, preservation of natural resources and green spaces	Aid urban economies (e.g. food, land and labour)	Boost local activities according to the "terroir" and traditions	Participation of local actors in local/external networks development processes

Focus for rural policy	Agricultural, agri-environmental and farming related measures	Agricultural productivity, encourage labour and capital mobility	Local capacity building (skills, institutions etc.)	Enhance local actors participation to direct local and external forces to their benefit

Source: own elaboration and adaptation from the results of the SCARLED project

Thus, RD policy monitoring and evaluation gained importance, but the improvement in availability and comparability of relevant statistics proceeded at a much slower pace, with several consequences on the choice for the most suitable methodologies to indentify rural areas.

Internationally, the most used methodology was proposed by OECD (OECD, 1994; 2005), which classifies regions (NUTS3 level) in three groups – Predominantly Urban (PU), Intermediate Rural (IR), and Predominantly Rural (PR) – according to three criteria which mainly rely on population density. Appealing features of this classification method are the simplicity in its application, in interpreting the results and their comparability between States. Its application presents several limits: according to the OECD classification (which is also adopted by the EU), PR represent 54% of the territory (reaching 91% together with IR), and 19% of the population (EC, 2009). Then, OECD classification doesn't consider the historical and developmental characteristics of different regions (i.e. productive structure, specialization, etc), nor the natural influence of the presence of mountainous areas, deserts, and semi-Nordic areas on population density. Finally, it doesn't catch the heterogeneous development pattern: within the same country it is possible to identify winning (rich) or losing (poorer), agricultural based[79] or services-oriented rural regions (Bertolini, 2009). In order to overcome these limitations, with the growing availability of indicators at sub-regional level new contributions were proposed. Based on the results of two Italian projects[80], a new geographical analysis of agricultural systems and rural areas was introduced by Anania et al. in 1995, then applied to Emilia Romagna (Boccafogli et al., 1998), and used for drafting the Italian Regional Plan for Rural Development 2000-2006. It consists of 49 indicators available at the municipality level, divided into 4 groups and analysed through multivariate analysis:

- indicators of the structure of the economy;
- indicators of the structure of agriculture;
- indicators of the demographic structure;
- indicators of dynamic changes.

The main advantage is represented by the possibility to identify disparities and similarities between rural areas (which emerge as a part of the dynamic changes in the

[79] Agriculture is still a distinctive feature of rural areas. EC, 2008.

[80] The National Atlas of Rural Areas (by CAIRE and Ministry of Agriculture), and the territorial agricultural systems (by National research project CNR-RAISA).

economic system) within the same Province, Region or Nation, and to monitor their evolution over the years.
Recently, an adjusted definition of rurality was provided by Bertolini et al. (2008): it considers population density, but it also introduces the concept of adjusted density (100ab/km²), calculated as total population – population belonging to the main inhabited centre of the area (expressed in km²), and it adds the role of occupation in agriculture on the national average at the NUTS3 level. In fact, choosing the EU average level would lead to underestimate the rural regions in Countries where the share of people employed in agriculture is low. This approach allows us to understand if the population of a region is gathered in one town or is more equally distributed; the relevance of the primary sector on the regional and rural economy; to correct the overestimation of rurality in countries presenting few large urban centres (i.e. Ireland, Slovenia) produced by the OECD methodology[81].
Also, the EU has developed a revised rural-urban typology (EUROSTAT, 2010) to avoid the spatial problem represented by NUTS3 regions that are too small (<500 km²), and the size-discrepancies between LAU2 and NUTS3. It follows OECD methodology in that it is centred on population density (population grid) and it can easily be reproduced in countries outside the EU for comparability. It is composed of a two-step approach to identifying population in urban areas[82]:
1. population density threshold (300 ab./km²) for grid cells of 1 km²;
2. a minimum size threshold (5 000 ab.) applied to grouped grid cells above the density threshold.
Results are, so far, not very satisfactory: this methodology classifies 68% of EU-27 population as living in urban areas and 32% in rural ones (5% higher than the original OECD definition).
At the time of the EU accession, the lack of a shared definition of rurality which could overcome the limits of the OECD one, which doesn't catch the real distribution of rural areas, and which doesn't account for national peculiarities, had several consequences, as evidenced by the results of the SCARLED 6th EU FP (Structural Change in Agriculture and Rural Livelihoods) which provided some guidelines for the analysis of rural areas in transition, and created a protocol of best practices from the successful experiences of RDPs in selected EU-15 regions. Analyzing the restructuring process of the agricultural sector and the rural socio-economic transformation in the NMS, the Project evidenced the need to study rural transition within the national development context, because rural development is the product of a country specific combination of internal and external, endogenous and exogenous forces. In particular, the Project highlighted the importance, in a scenario characterized by limited statistical information at a disaggregated level for unclear identified rural areas, of providing a comparison of the national multidimensional development contexts in the NMS: a particular attention is paid to the

[81] By the way, similar final classification of rural areas in EU: 73%, but more differentiated urban ones.
[82] Therefore, the population living in RA is the one living outside the urban areas identified in this way. Grids are not applicable to overseas regions, which follow the OECD classification.

changing socio-economic structural characteristics of agricultural and rural areas and their role on the national economies, and to the contribution of non observed/off farm economy, removing the veil on the contribution of subsistence production to rural households' income in the CEEc.

5.1.2. Rural development statistics and data sources

Agriculture and rural development is a key policy area because of its role in the promotion of sustainable development and environmental protection, and for the improvement of the quality of life and poverty reduction. Agricultural and rural areas deserve particularly importance when considering the need to rethink the growth model, characterized by the depletion of the limited natural resources (i.e. land, water, and food) and their unequal distribution. Moreover, in the last years citizens' interest towards the use of public funds increased, as well as their commitment towards sustainable living solutions, in order to preserve agricultural and rural areas as public goods, i.e. areas which provide safe food and preserve the environment. Therefore, policy makers are more and more interested in policy evaluation, at the national and local level.

There is a need for increasing the availability of accountable, disaggregated, updated and accessible statistical information, in order to monitor and evaluate the performance of the policy introduced. Statistics are at this regard policy driven (within certain limits): they have to offer the policy makers clear, fast and tailored information on the situation, in order to monitor the effects of the policies, assessing their performance and planning changes if necessary (UN, 2012). In fact, the provision of reliable and timely released statistics helps analyzing the dimensions of the problems that the policy aims to tackle, and how they change over time, setting the basis for policy monitoring and evaluation. In fact, the provision of proper data can contribute defining targeted policies and programs, also considering for the backlashes of the previous ones enacted, increasing the policy effectiveness and efficiency.

The multidimensional reality of agricultural and rural areas in the age of globalization requires the availability of a statistics from different fields (i.e. agriculture, labour market, demography, geography), coming from different sources, and the application of specific methodologies able to analyze them together at the same time, often in a comparative perspective, accounting for limits of using different data sources and availability. By the way, the production and collection of relevant statistics is costly (even today in the digital era) in terms of time and money, while policy makers mostly need fast answers to the problems which come at their attention.

In the analysis of rural areas, different data sources are characterized both by shortcomings and advantages. Case studies (Yin, 2009) can provide very detailed information on a specific reality, but their methodological foundation, mainly based on surveys or focus groups, cannot be generalized.

Instead, censuses are a precious source of data, because they represent a comprehensive investigation on the whole population. In some cases, sector specific censuses such as

the agricultural census (which is often scheduled in the intervals between two national censuses) are also provided. The agricultural census is very important especially in developing countries, where the rural population still mainly rely on agriculture for the households' income, because it offers important information on the development path followed by rural areas, and the changes occurred.

The main disadvantage of censuses is that they take long time to collect the answers and validate them and, most important, they don't allow catching the changes occurred in the short time, because long time passes between the individual censuses (usually ten years). Moreover, they don't report disaggregated information on consumption patterns and income sources, which can instead be found in the household's budget surveys. In the last years, statistical yearbooks are redacted yearly in several industrialized and developing countries by the national statistical offices, often according to an internationally shared methodology (i.e. the case of the EU and OECD countries). They have the advantage to collect socio-economic, demographic and agricultural data at a very disaggregate level (e.g. municipalities) which are comparable through time, but only for some main accounts.

Then, several international research groups and projects (e.g. the Global Footprint Network for environmental protection, or the Millennium Development Goals) and international institutions and organizations (e.g. the EBRD for transition countries) created own indicators and databases in order to share information and monitor the evolution of specific issues, and new ones are coming.

For agricultural and rural areas, the challenge is the provision of territorially based statistics and indicators, which are still weak and fragmented (Hill, 2003), to be comparable between countries and regions. In fact, even countries belonging to the same area (as in the EU case) tend to use different definition for key concepts such as the household, and to differently aggregate their components (ISTAT, Blue-Ets Project, 2012). More statistics are required on the incomes of rural and agricultural households, in order to allow indicators to accomplish the policy need to monitor the income situation of agricultural households.

The construction of indicators for the analysis of rural areas, especially in the case of synthetic indicators, have the advantage to offer a snapshot on the objective of interest, but they often have to pay a price in precision in the aggregation of their statistical sources, which can combine and cross data coming from different sources which often differ in coverage, precision and periodicity. Moreover, we must remember that the final choice for the construction of indicators is always constrained by data availability.

In order to provide useful information for policy design, monitoring and evaluation, indicators should fulfil the following criteria (UN, 2012):

- they should be relevant;
- they should be simple and easily understandable;
- they should be problem oriented;
- they should be clearly defined;
- they should be based on the same statistical unit;

- they should result in conclusions easily communicated to policy makers;
- they should react rapidly to changed situations.

The WB and the OECD provided lists of guidelines for the construction of indicators to analyze rural areas, and the former placed particular attention to developing countries.
The WB started to promote approaches principles in the area of rural development since 1998, focusing on the revitalization of rural development at the local community level, the involvement of the stakeholders through all the stages of the projects, the delivery of rural financial services to the poor, the promotion of sustainability in resource use through community-based management.
Accordingly, the WB evidenced five themes (ISTAT, Blue-Ets Project):

- basic socio-economic data;
- enabling environment for rural development;
- broad based economic growth for rural poverty reduction;
- natural resource management and biodiversity;
- social well-being (education and health).

The OECD identifies both general and specific subjects for analyzing rural areas at different degree of specificity.
Among the general subjects, the OECD lists (OECD, 1996):

- population and migration;
- economic structure and performance;
- social well-being and equity;
- environment and sustainability.

To each macro area, several indicators have been identified (Table 5.1.2), which cannot be considered to be definitive and comprehensive, given the dynamic and multidimensional nature of rural areas.

Table 5.1.2: OECD basic rural development indicators classified by themes

Population and migration	**Social well-being and equity**
Population density	p.c. GDP
Population change	Housing conditions
Population structure (by sex and age)	Education levels
Households (structure and social organization)	Health conditions
Population living in local communities	Crimes and justice
Economic structure and performance	**Environment and sustainability**
Labour force	Topography and climate
Employment growth	Land use (change)
Unemployment rate	Habitat and species
Sectoral share on employment and GDP	Soils and waters
Public administration share on employment and GDP	Air quality
Sectoral productivity	
Sectoral investments	

Source: OECD, 1994

Both the WB and OECD statistical information and indicators share a main limit, as they are provided at an aggregate (national) level; thus, their relevance in different areas of the same country can't be assessed.
In the EU, Eurostat provides useful information for the analysis of agricultural and rural areas, especially concerning the agricultural production, land quality and use, agri-environmental dimensions of sustainability. Data come also at a disaggregated level, but mostly they don't go more in depth than the NUTS 2 (regional) level, which don't allow catching the relevance of specific features and realities at the local (sub-regional) level. With regard to the living conditions in rural areas, basic data on economic structure and performance (sectoral employment and investments), or social well-being (education, communications) cover only the regional dimension.

5.1.3 Rural development policy evaluation in the EU

The identification of a proper methodology for the classification of rural areas and the construction of accountable indicators are important not only for their informative contribution to the analysis of the evolution of the rural landscape, and the changing urban-rural relations. They also provide the instruments for rural development policy design and implementation, and for their monitoring and evaluation. With the reform of the Structural Funds in 1988, a system of monitoring and evaluation of the regional policies was introduced in the EU (OECD, 2009), followed by the Sound and Efficient Management system to manage the EU spending, which opened the way to the Agenda 2000 reform. Rural Development was a main exponent of this trend: in fact, in the EU the change in the philosophy behind RD went together with the acknowledgement of the need for targeting policies and measures, avoiding the duplication of interventions and the waste of public money. Formal evaluation, addressed by the EC as the "judgement of interventions according to their results, impacts and needs they aim to satisfy" (CEC, 2000), was finally considered as an integral part of the policy process (Bradley et al., 2010). Accordingly, an European evaluation framework was developed, in order to meet the EU priorities for RD, i.e. the promotion of knowledge share and innovation for a strong and dynamic agri-food sector; the preservation of biodiversity and natural resources (land, water) against climate change; attention to the multifunctional role of rural areas; the creation of off-farm employment opportunity through diversification; the promotion of new, bottom-up governance approaches based on local participation. Legislative regulations were introduced regarding the use of EU funds by the EU Member States for the measures related to RD (for the current programming period 2007-2013, Regulation 1698/2005 is in force) establishing that the Member States are compelled to have evaluations carried out by independent bodies, according to a common EU timetable, following the principles of decentralization and accountability.
The EC set up a highly structured approach to the evaluation of each seven-year Rural Development Policy programs (RDPs), the Common Monitoring and Evaluation Framework, which applies to all the EU-27. It is composed by three main parts: *ex-ante, in itinere* and *ex-post* evaluations, respectively occurring before, during and after the

implementation of a programme, following the EC written guidance. The results of these evaluations are gathered in reports accessible to all the stakeholders, in order to increase accountability (policy and results for money), transparency and to provide some lessons learnt.

The CMEF is a highly quantitative approach which includes 160 indicators gathered into five groups, according to a hierarchy of objectives, a tool which presents the several intervention logics which link individual actions and measures to the overall goal of interventions (EC, 2006). In particular, it is composed of 140 common evaluation questions pre-written by the EC, to be submitted to policy makers in the different Member States. It is aimed at assessing the policy impact at the national and regional level, addressing neither the local reality nor specific sectors (i.e. farmers' or households' income). The first results, analyzed by the European Project RUDI "Assessing the Impact of Rural Development Policies" (http\\www.rudi-europe.com) shows that, even if the CMEF should facilitate the identification of the causal effects, in the reality it presented several backlashes, both at the theoretical and operational level. With its rigid structure and its main focus on the quantification of the policy effect, the CMEF approach was difficult implement in the different member states, and the results were often far from the awaited.

The designation of standardized evaluation questions and indicators made by the EC has the advantage to put order in the common evaluation framework, enabling the synthesis of evaluation results and checking for quality control. By the way, such a system often fails to address the specific circumstances of different national or regional realities. Member States are allowed to suggest changes in some questions, but in practice they can't do it because of the lack of money and administrative capacities, and time. Timing is an open issue in the CMEF: the aim of learning from the evaluation is endangered by the insufficient time left to Member States to consult their evaluators before submitting the new programs. In fact, there is no break between two programming periods, and the planning and agreement of a new programme has to take place before the results of the *ex-post* evaluation. In this way, a time lag in programmes evaluation occurs, and the new programming can't benefit from the results of the evaluation of the former period, thus hindering the sense and usefulness of the evaluation itself. Then, such a quantitative evaluation system of performance measurement needs to rely on timely updated and easily available data (with no further cost for MS), but this is often not the case of RDPs. In fact, limitations persist at the national and sub-national level in data availability, especially on the applications and claim forms from potential beneficiaries, and for particular measures, which lead evaluators to answer the CMEF with proxy measures (Bradley et al., 2010). Relying on data alone can be tempting (and easier) can't counterbalance a weak theoretical base for the diagnosis and effect in policy performance (Midmore et al., 2009). In fact, this system can lead to forget "the mean of it all", the final objective of the evaluation, i.e. understanding how and why policies operate the way they do, and even to establish a proper counterfactual scenario (what would have happened in the absence of interventions). The importance of understanding

the causal process behind rural development emerges in the case of dead-weight (i.e. when there are recipients of policy funds who would have delivered the desired outcomes even without compensation, Margarian, 2010) and the related selection-bias problem; when the context plays a role in influencing the results (context-dependent impact of measures); when measures are applied to regions, the outcomes can be influenced by several and diverse factors; when the measure can't be assessable with the available data and measures. The complexity and inherent limits of this evaluation framework contribute decreasing the efficiency of evaluation results, and the policy makers and stakeholders' commitment to policy evaluation (i.e. they only feel like executants). By the way, as Blandford et al. (2010) highlight, the development of a general theory able to reflect the behaviour of rural areas is extremely difficult due to their heterogeneity. Better results could be obtained by promoting a dual approach: the theoretical foundation of policy interventions should be strengthened according to the results of policy monitoring; the CMEF could be improved introducing *ad hoc* targeted and flexible indicators; increased data transparency would allow sparing time, which can be used to provide policy advices before the starting of the next programming period. The need for alternative, more "user friendly" and effective methodologies, led to the introduction or application of different methods to rural development policy evaluation. 22 evaluation methods alternative to the CMEF are analyzed in Terluin et al. (2010), comparing the main strengths and weaknesses, especially in the implementation and interpretation of the results (Table 5.1.3)

Table 5.1.3: Assessment of the main properties of evaluation methods

	CMEF type approach	Tally approach	Econo-metric approach	Model-ling approach	Mixed case study approach
Diagnosis of cause and effect:					
- description of what has happened (in quantitative terms)	x	x	x	x	
- description of what has happened (in qualitative terms)					x
- description of how and why it has happened in interaction with the local context and other policies					x
- impact is measured at the right territorial level	partly	x	x	partly	x
Indirect results of policy intervention are taken into account	x		x	x	x
Unintended effects of the policy intervention are taken into account					x
Reveals reasons why actors participate in a policy measure					x
Covers the whole territory in which measure is applied	x	x	x	partly	
Easy to apply for evaluator		x			x

Source: Terluin et al., 2010

The analysis of the CMEF highlights several limits already evidenced above (e.g. the description of how and why a result happened at the local level, the unintended effects). Among the modelling approaches, the Social Accounting Matrix (SAM) is able to

address the policy effect at a very disaggregated level, but it needs very detailed data which can be often collected only through ad hoc surveys (i.e. in the case of households), resulting costly and time constrained. Moreover, it shows the policy impact only for a certain year. General Equilibrium Models (GEM) can catch the impact only at the national level, and they require complete time series, while the more complete Computable General Equilibrium Models (CGEM) are very costly (time, data and methodological efforts required).

Instead, Terluin et al. developed and applied a mixed case study approach, which combines different methods in different stages of the analysis, from which final results are combined in order to provide support for the causal relationship (Terluin et al., 2011). First, a desk research on secondary data is conducted on case study regions, in order to provide a contextual framework, and then primary data are collected through surveys to different stakeholders of representative groups.

This approach gives interesting results for explorative purposes, drafting a general scenario of what has happened, where and why, and setting the basis for a more complete methodological framework. By the way, its results are difficult to be quantified, thus it lacks a synthetic measure of the results to be easily communicated to policy makers. Moreover, the comparison of results isn't very immediate neither through the years (if the questions need to be rearranged) nor between regions.

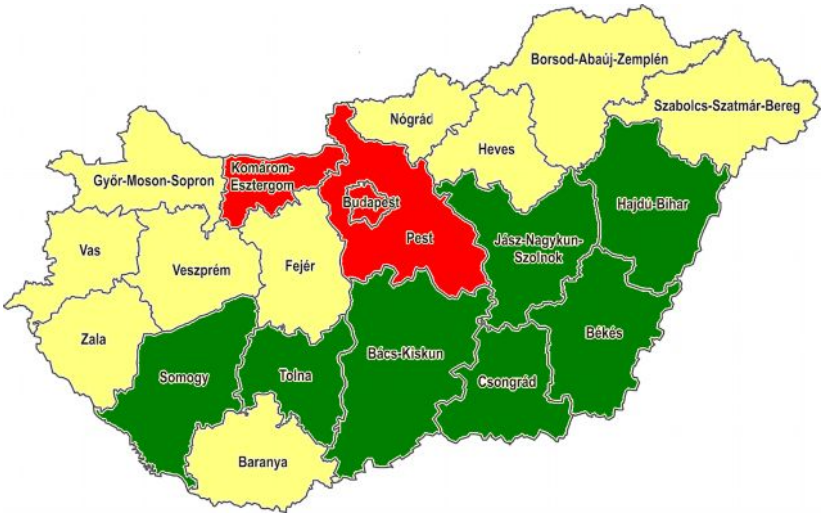
5.2 Methodology

The limits of the OECD classification of rural areas, used in the EU-27, for Hungary are shown by Figure 5.2.1: just one county (Budapest) is classified as predominantly urban (PU), while 47% of the territory emerges as predominantly rural (PR).

Figure 5.2.1: Hungarian counties according to the OECD perspective

Different results are provided applying the Adjusted Rurality methodology (Figure 5.2.2): three counties are classified as PU, and only 28% of the territory as PR.

Figure 5.2.2: Hungarian counties according to the Adjusted Rurality perspective



Legenda: PU: red; PR: green; IR: yellow
Source: own elaborations on HCSO maps

Therefore, a revised methodology is introduced, mainly influenced by the *Adjusted Rurality* definition provided by Bertolini et al. (2008) and enriched by some meaningful variables.

5.3 The sample and the data

The sample is composed by the 17 Hungarian rural counties identified with the application of the enhanced adjusted rurality methodology, which excludes Budapest Pest and Komárom-Esztergom (in red in Figure 5.2.2). A group of 44 socio-economic-demographic and agricultural variables, which are available yearly at the county level (NUTS3) for the years 2003 and 2007 is used (Table 5.3.1).
The relevance and representativieness of indicators have been inquired by the literature[83], and they appear to be fundamental also for shaping targeted local policies. In this case, as for some NMS, the identification of relevant and statistically meaningful variables is a demanding step, due to the persisting limitations of data availability, and data reconciliation issues. For the purposes of the analysis of the changes occurred in agricultural and rural counties in Hungary, a mixed database composed of indicators coming from different sources but comparable, representative and available for the same time period is used (data from Eurostat; the Household Budget Survey; the European Union Statistics on Income and Living Conditions, EU-SILC; the FADN/RICA; the Hungarian national statistical office HCSO).

[83] OECD, 1994; Brasili et al. 2008,

Table 5.3.1: List of variables and indicators

Economic and productive structure	National road length	Bed-places in hotels and similar	Employment primary sector (%)	Employ-ment secondary sector (%)	Employment services (%)	Employment P.A. (%)	Number of hospital beds	
Structural indicators for agri-culture	Land price	Agri. land productivity	Agri. labour productivity	Average land size	Holdings <5 ha AA	Holdings >=50 ha AA	Holdings <2ESU	Holdings >100 ESU
Farmers <35 (%)	Farmers >65 (%)	Work time <50% (AWU)	Work time 100% (AWU)	Arable land/AA	Cereals/arable land	Maize/arable land		
Bovines/holding with livestock	Pigs/holding with livestock	Tenant/farm owners	Forests/total agricultural area	Industrial crops/arable land	Pasture/arable land			
Socio-demographic structure	Permanent in-migration (%)	Permanent out-migration (%)	Temporary in-migration (%)	Temporary out-migration (%)	Aging index	Dependency ratio	Population density	Youth index
Economic dynamism	GDP Hung=100	Unemploy-ment rate	Population change (02-03)	Primary sector on GDP (%)	Secondary sector on GDP (%)	Tertiary sector on GDP (%)	Long term unemployment	Youth unemploy-ment rate

Source: Eurostat, HCSO, FADN/RICA

The level of disaggregation NUTS 3 was chosen due to the lack of data at the municipality level. The variables were listed according to their relevance in shaping the evolving trend of rural areas, coherently with the indications for RD policy evaluation methodology provided by the EU CMEF. Indicators in line with the new CAP vision towards agricultural diversification, multifunctionality and environment sustainability are included, together with the six indicators emerged by the last findings on the determinants of wealth gaps among EU regions[84], in relation to agricultural productivity and quality of life: topography; youth unemployment rate; long term unemployment rate; number of patents; private and public funds invested in R&D; people in top business positions. Finally, the guidelines provided by the SCARLED project for the comparison of the socio-economic conditions, including some proxies of poverty (mainly associated to remoteness) and vulnerability (most often linked to unemployment, underemployment and subsistence agriculture) in rural areas, are taken into account.

The variables were listed in four groups in order to ease the interpretation of results:

1. economic and productive structure: they offer an image of the economic and productive system of the area, paying particular attention to the employment structure;
2. structural indicators for agriculture, considering the productive characteristics of the sector;

[84] EC: Speech by Commissioner Andor László to the High-Level Policy Roundtable on Human Capital in Cities and Regions.

3. socio-demographic structure, to monitor the evolution of the population, bearing in mind its age structure and cultural characteristics;
4. economic dynamism: indicators reflecting the dynamism of the productive system. It facilitates the analysis of the fluxes of the structural components in the agricultural sector and in the employment structure, within the national macroeconomic framework.
Principal components analysis (PCA) was applied to the selected variables. PCA is a methodology belonging to multivariate statistics which doesn't require strong assumptions on the model. Therefore, it is able to work in situations were available data and their quality are far from optimal. Moreover, it has been widely used for similar analyses (Cannata, 1998; Fanfani et al. 1999; Bogdanov, 2007; Monasterolo et al., 2010). With PCA a group of *p* indicators, obtained on a group of *n* statistical units, is transformed into a smaller group of variables, which are still able to explain a high percentage of the original data variability, to avoid important loss of information (Mazzocchi, 2008). While at the beginning of the process the indicators are highly correlated, the transformed variables we obtain (principal components, PCs), which are a linear combination of the original indicators, are uncorrelated. The PCs are computed on the correlation matrix, in order to avoid the distorting influence of different measurement units (and hence different variance scales) across indicators[85]. The values of the components are obtained from the component matrix[86], and the scores of every statistical unit (county) are computed for each component.
The *k* principal component scores of the selected components ($k<p$) comes from the following linear combinations, expressed as a matrix:
(1) $Y= XA$, where
Y is the nxk matrix, containing the scores of the n statistical units in the k components
A is the vector matrix pxk of the normalized coefficients
X is the nxp matrix of the standardized data.
The scores of the Y matrix are then used in the cluster analysis (CA)[87] to maximize homogeneity within clusters and heterogeneity between clusters. This approach allows us to identify and group areas with similar features, and describe them through the PCs values.

[85] The correlation matrix is used when the original variables have different measurement units. In this case, standardization occurs.
[86] Components are not rotated.
[87] SPSS automatically provide standardized values, which are used in the cluster analysis. Then, all the components are supposed to share the same variance equal to 1, and therefore the same weight in the mapping, carrying possible distortive effects.

5.4 Analysis and results

5.4.1 An application of Principal Components Analysis and Cluster Analysis to the Hungarian rural counties in 2003

A principal component analysis (PCA) was conducted on the 44 variables. An initial analysis was run to obtain eigenvalues for each component in the data. Five components had eigenvalues over Kaiser's criterion of 1, and the scree plot showed inflexions that would justify retaining both components 3 and 5. Given the sample size, and the convergence of the scree plot and Kaiser's criterion on five components, this number of components was retained in the final analysis. These components explain 75.2% of the original variance, in line with the Guttman-Kaiser criterion, which suggests PCs explaining 70-80% of cumulative variance.
There are different methods used to establish the number of principal components to choose. In this analysis:

- the Guttman-Kaiser criterion is followed, which states to choose the principal components able to explain the 70-80% of cumulative variance;
- the principal components with eigenvalue over 1 are retained;
- I looked at the *elbow* on the scree plot.

An initial analysis was run to obtain eigenvalues for each component in the data. Five components had eigenvalues above 1 (Kayser's selection criterion), and the scree plot showed inflexions that would justify retaining either 3 or 5 components. Given the sample size, and the convergence of the scree plot and Kaiser's criterion on five components, the latter number of components was retained in the final analysis. These components explain 75.2% of the original variance, in line with the Guttman-Kaiser criterion, which suggests PCs explaining 70-80% of cumulative variance.

PC1 - rurality (28%). This component gathers the main features of Hungarian rural areas. Positive values are associated with the presence of recipients of social support, dependency ratio, employment in public administration (PA) and in the primary sector; presence of a young population and university students; all the unemployment indexes; presence of small farms. Coherently, negative values are shown for p.c. GDP and net earnings on the national average; employment rate; role of secondary sector on employment and GDP; labour productivity in agriculture.
PC2 - agricultural development (16%). Positive values are associated overall with the primary sector: its role on GDP and employment (full-time mainly); the presence of larger farms and younger farmers; cereals, maize and pig breeding among the activities; land price and R&D expenditures. Negative values are shown in labour productivity in agriculture; population density and immigration rates; all unemployment indexes, in particular long term unemployment.
PC3 - economic development (14%). This gathers the developmental features of rural areas: positive values are recorded for population density and population change; p.c. GDP and average earnings; employment in services, value of industrial production and

university students. Instead, negative values are associated with long term unemployment; aging index; older farmers; employment in public administration (PA).
PC4 - emerging rural diversification (10%). This identifies areas with natural and agricultural assets (positive land price, cereals and maize, forests and livestock), and a tendency toward economic diversification but persisting unemployment and low salaries.
PC5 - touristic vocation (7%). Positive values underline the role of natural attraction (forests, pastures, accommodation, and temporary immigration) and the primary sector in the economy (agricultural and labour productivity in agriculture). Negative values are recorded for long term unemployment, employment in the PA, presence of recipients of social support, average farm size.
The next step was the application of cluster analysis to the 5 PCs. A two-step process was adopted. First, a hierarchical method (*Ward's method*) was applied and a dendogram showing the nesting process was obtained. As hierarchical methods often present problems with data containing a high level of error, the final clustering was obtained by applying non-hierarchical method, the *k-means algorithm*, where *k* stand for the number of clusters chosen to start the process. In fact, this method is faster and more reliable when working with large databases. All the individual observations are assigned to the nearer cluster seed, and the researcher needs to set the initial seeds and specify the number of clusters. Furthermore, reallocation is allowed for in each iteration step.

5 clusters were identified:

1 - Deep rurality. This includes two counties (Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg) located at the North-Eastern border of Hungary. In former Communist period they were invested in heavy industrialization, but due to the unsolved structural problems during transition they now show high unemployment rates (+30%, youth unemployment +50%[88]), presence of recipients of social support and employment in PA (+60% and +20%), low P.c. GDP (-30%). The secondary sector still plays a relevant role (thanks to the delocalization of multinational companies i.e. GE and Borsch, mainly in the food industry, manufacturing, chemical and metallurgy), while agriculture is lagging behind (farm size is the half of the national average, as full-time work in agriculture).
2 - Potential rurality. This identifies the Southern Transdanubia Region (Baranya, Somogy, Tolna), characterized by a positive PC2 due to the role of the primary sector (9% of GDP, +20%), with maize as main cultivation (+40%); high natural endowments (Lake Balaton, vineyards); good services, infrastructures, and investments, which contribute to economic diversification and tourism (positive PC4 and 5, +30% accommodation).
3 - Manufacturing sector. This is composed of five counties belonging to Western and Central Transdanubia, with good productive performance and living standards above the national average (+25% GDP, -80% long term unemployment). It is specialized in

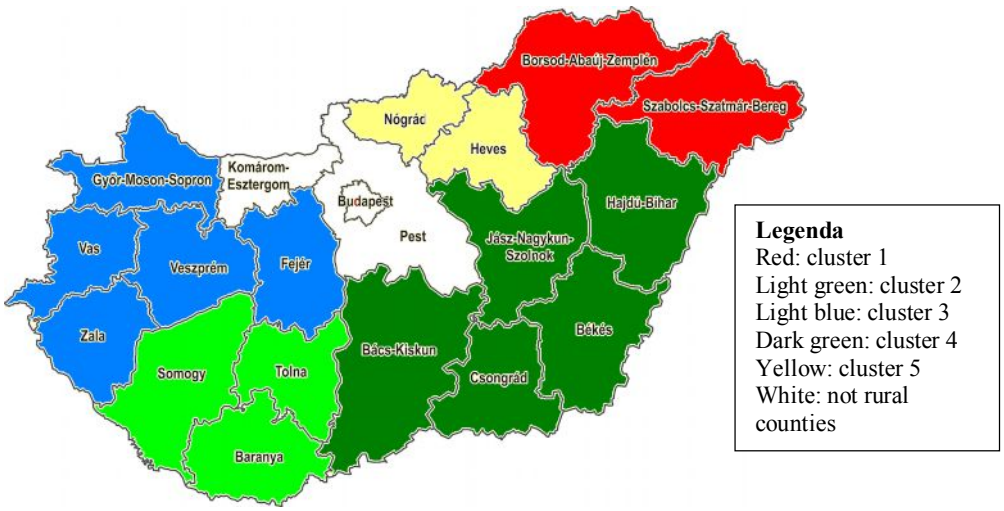
[88] Percentages used for describing clusters values are intended in comparison with the national average.

manufacturing activities (machine industry, textiles and foods, +30% value of industrial production), also due to the several foreign companies, especially from Austria and Germany, which invested in the area during transition (Audi, Renault, General Electrics). Moreover, it is rich in historical and natural endowments, which helps diversification (positive PC4 and 5).

4 - Agricultural activity: composed again of five counties, located in Northern and Southern Great Plain, this is characterized by the role of the primary sector (+30% on GDP and +22% of employment in agriculture) and the presence of natural attractions (i.e. Puszta, flood plains, spa water). In this cluster, Debrecen, the second largest Hungarian city and an important national research and university centre (+20% expenditures in R&D), is located. These features were not able to contribute effectively to area development (-10% GDP and net earnings, -20% labour productivity in agriculture).

5 - Backwardness cluster includes Heves and Nógrád (Northern Hungary). It shows negative values for all the PCs, highlighting problems in the economic (-20% GDP), social (+20% recipients of social support, +40% long term unemployment) and agricultural (prevalence of small farms and old farmers) sectors, which were unsolved and even worsened during the transition period. These counties were characterized by the presence of mining and chemistry industries, already declining before the system change: now the value of industrial production is twice as low as the national average, and expenditures in R&D and request for patents reach one third of the national average.

Figure 5.4.1: Hungarian rural counties, 2003



5.4.2 Catching the enlargement effect: an application of Principal Components Analysis and Cluster Analysis to Hungarian rural counties in 2007

In order to understand the changes that occurred in Hungary after the European membership, I repeated the same process (PCA and CA) on 2007 data, using the same set of variables after the end of the first programming period 2004-2006 for NMS.
5 PCs were identified, explaining 74% of the original variance:
PC1 - rurality (26%). This first component shares the same features of PC1 in 2003, but it shows worse results. Positive values are associated with the presence of recipients of social support; dependency ratio; all the unemployment indexes; employment in agriculture and the role of PA. Coherently, negative values are associated to p.c. GDP, net earnings and employment rate.
PC2 - age structure (15%). Positive values are associated with the presence of a young population (youth index, university students, youth unemployment), population change and with the value of industrial production, while negative values are associated with the role of the primary sector on employment and GDP, presence of older farmers and the ageing index.
PC3 - agricultural productivity (14%). This component gathers the performance indexes for agriculture. Positive values are associated with occupation (mainly the presence of younger farmers), agricultural productivity, cereals and maize production; investments in R&D and patents, temporary immigration, which show the role of external investments in agriculture in less favoured areas (negative land price).
PC4 - lagging agriculture (10%): positive values are recorded for crops, family farming, land price, tourist accommodation and employment in PA. Instead, negative values are associated with farm size, farmers' age and full-time work in agriculture, agricultural and labour productivity; relevance of the secondary sector and investments.
PC5 – rural diversification (9%): this component is characterized by naturalistic attractions (forests, pastures) and tourism (accommodation, employment and role of the tertiary sector on GDP), positive immigration indexes, with part-time and older farmers prevailing in agriculture. Instead, negative values are associated with the secondary sector and the value of industrial production.

After running the analysis with *Ward's method*, the application of the *k-means* allows us to identify again five clusters. They differ from the analysis provided for 2003 in composition and values:
1 - Lagging rurality. It gathers three counties located in North-Eastern Hungary which share the features of declining rurality: high rate of recipients of social support (+50%[89]), high unemployment (+30%), p.c. GDP and net earnings lower than the national average (-15%), positive demographic balance. Low productive agriculture is mainly conduced at the family level (negative PC3 and positive PC4), with the prevalence of industrial crops.

[89] Percentages for describing clusters must be intended on the national average value.

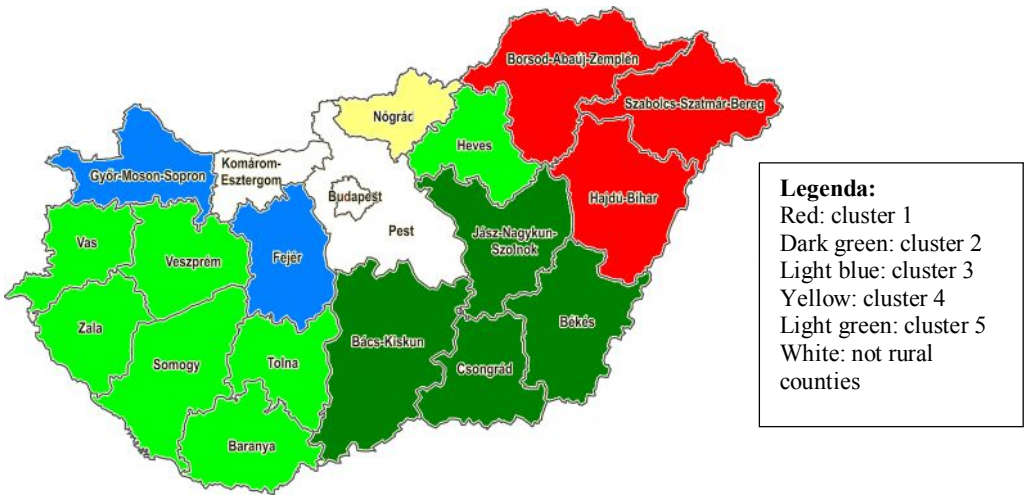
2 - Agricultural vocation. This is composed of four counties, mainly in Southern Great Plain, showing agricultural vocation (+30% contribution of primary sector on GDP and +23% employment, larger farm size, young farmers), high rate of expenditures in R&D (+30%) and patents (+20%). The natural attractions could be better exploited for diversification, creating tourist facilities.

3 - Industrial areas: Fejér and Győr-Moson-Sopron, in Central and North-Western Hungary, are the most developed of the 17 counties examined. In fact, they have a high GDP, net earnings and population density (respectively +30%, +10% and +20%), the lowest unemployment rate (-50%) and employment in PA, a dynamic population. The economy is driven by the secondary sector (highest value of industrial production), while agriculture is conducted in a productive way (larger farms, high labour productivity).

4 - The **backward** cluster is composed of just one county, Nógrád, located in Northern Hungary, presenting characteristics of deep rurality and low development perspectives. P.c. GDP is 60% lower than the national average, long term unemployment and relief on social support are high (30%). Industrial production is still declining, and investments are lagging, and no of diversification (e.g. tourism, services) are on offer.

5 - Diversification. This is the largest cluster, composed of seven counties on the Southern and Western Hungarian borders. The rich natural, historical, wellness (medicinal and thermal waters) sites and the eco-tourist infrastructures are an important source of attractiveness of this flat and green area, where agriculture is dominantly composed of crops and vineyards, and conducted in a quite productive way. In fact, p.c. GDP and permanent immigration are above the national average, while unemployment indexes are considerably low. Apart from in the tertiary sector, industry also has a good role on the economy of the area, in the energy, telecommunications and food industry sectors (PannonPower, SMT, Elcoteq, Sió).

Figure 5.4.2: Hungarian rural counties, 2007



5.4.3 Testing the classification results through Discriminant Analysis

A Discriminant Analysis (DA) was run for 2003 and 2007 in order get a confirmation of the classification results obtained with the previous Cluster Analyses, ranking counties according to the set of relevant variables (Klecka, 1980). The predictors (discriminant variables) were defined through a backward regression run on the variables composing the PC1 (from the previous Principal Component Analyses), which is the one explaining the most of the variability of the original dataset. The backward method was preferred to the forward one in order to avoid the possibility of incurring in suppressor effect.
For 2003, the backward regression evidenced five variables - number holdings <5 ha AA, ageing index, dependency ratio, the share of secondary sector on GDP, population density (p.c. GDP as dependent variable). According to the results of the diagnostics, two variables were excluded due to possible multicollinearity problems - number holdings <5 ha AA and the share of secondary sector on GDP which showed condition index over 30. Tolerance index was over 0.260 for all predictors, VIF ranged between 1.6 and 3.8. The model had a good explicative power: the Adjusted R Square was 0.967, and the value of the Durbin-Watson test was around 2 (Table 5.4.1).

Table 5.4.1: Model summary 2003

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
7	.988[g]	.976	.967	5.986481	2.162

Dependent variable: p.c. GDP

The discriminant analysis was run on four variables - dependency ratio, population density, p.c. GDP, ageing index (this last one deleted from the groups due to not significant value for the Wilk's Lambda). The most influencing discriminant variable was population density (Table 5.4.2). The number (and percentages) of correctly classified cases are presented in Table 5.4.3. In total 90% of the cases were correctly classified: two counties previously classified as urban (Pest, Komárom-Esztergom) were reclassified as rural, while all the former rural counties maintained their classification. The most urban county was Budapest, and the most rural one was Borsod-Abaúj-Zemplén.

Table 5.4.2: Standardized canonical discriminant function coefficient

	Function
	1
Dependency ratio	-.644
Density	.876
GDP Hung=100	-.103

Table 5.4.3: Classification results

		rurality	Predicted Group Membership		
			Urban	rural	Total
Original	County	urban	1	2	3
		rural	0	17	17
	%	urban	33.3	66.7	100
		rural	.0	100	100
a. 90% of original grouped cases correctly classified.					

The backward regression for 2007 identified the following variables: recipients of social support, population density, agricultural value added, part time in agriculture and value of industrial production (p.c. GDP as dependent variable). Agricultural value added showed not significant *t test* for the regression coefficient and was excluded.

Table 5.4.4: Model summary 2007

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
11	.994[k]	.987	.983	4.750485	1.694

Dependent variable: p.c. GDP

Thus, a DA was run on the remaining predictors. Looking at the values of the Fischer's discriminant coefficients in Table 5.4.5, the variable which most contribute to the discrimination of Hungarian counties is p.c. GDP.

Table 5.4.5: Standardized canonical discriminant function coefficient

	Function
	1
Recipients of social support (%)	1.137
Density	-1.249
GDP Hung=100	1.784
Work time <50% on total holders	-1.281
Value of production, million HUF	-.268

Significant Wilks' Lambda for the discriminant function and Chi-square *p-value* allows rejecting the hypothesis of equality in the groups' means. From the DA, all the counties emerged as rightly classified (Table 5.4.6), confirming the results of the previous Cluster Analyses. Then, we can assume that the variables identified through the Principal Components Analyses and the backward regressions are important for determining the classification of Hungarian counties in urban or rural.

Table 5.4.6: Classification of results

			Predicted Group Membership		
		Rurality	Urb	Rur	Total
Original	County	Urb	3	0	3
		Rur	0	17	17
	%	Urb	100	.0	100
		Rur	.0	100	100
a. 100% of original grouped cases correctly classified.					

5.5 Discussion of results

The analysis of the changes that occurred in the Hungarian rural counties between 2003 and 2007 presented here follows a previous one conducted on all twenty counties, including the urban ones (Monasterolo et al., 2011). Analysis conducted on the whole Hungarian territory evidenced the following changes between 2003 and 2007:
- a decrease in the importance of the components linked to: **economic development** (positive values recorded for population density and p.c. GDP, net earnings, university education, employment in services);
- an increased **social and industrial decline** (positive values for unemployment, recipients of social support, and high employment rate in the public administration);
- increased role of agriculture (full-time employment in the primary sector, small farms).
At the same time, the Cluster Analyses showed:
- the move from the secondary sector to agriculture in some counties (Zala and Győr-Moson-Sopron), without improvements in the economic performance and living conditions;
- diffusion of phenomenon of marginalization in the counties that are already lagging behind (Nógrád, Szabolcs-Szatmár-Bereg).
Therefore, this analysis confirmed the presence of winning and losing regions from the enlargement: the former group is represented by Budapest (able to attract initiatives in the tertiary sector and finance) and the Western border (a specialized centre for industrial production), while in the Eastern peripheries the socio-economic situation worsened, together with agricultural productivity after the land reform.
The PCA and CA analysis made on Hungarian prevalently and intermediate rural counties, shows, partially, similar results. In fact, between 2003 and 2007:

- greater importance is held in the **component of rurality** (recipients of social support, dependency ratio, employment in PA and in the primary sector; unemployment; small farms);

- the only component related to **economic performance** in 2003 (population density and population change; p.c. GDP and net earnings; employment in services, value of industrial production and university students) disappears in 2007;

- a greater role is played by **agriculture**, with both positive (agricultural productivity) and negative (lagging agriculture) features;
- components of economic diversification have a residual importance.

Cluster Analysis for 2003 highlighted the role of rurality, both in its positive (C. 2 Potential rurality) and negative features (C.1 Rurality, C.5 Backwardness). Moreover, a clear distinction emerged between counties characterized by agricultural (C.4 Agricultural activity) or manufacturing activities (C. 3 Manufacturing sector).

Instead, Cluster Analysis for 2007 evidenced the features of declining rurality (C. 1 Lagging rurality, C. 4 Backward), and the decision to diversify activity (C.5 Diversification) in several counties previously interested by manufacturing and agriculture (ex. C. 3 and C.4).

The counties of Vezprém (Central Transdanubia Region), Vas and Zala (Western Transdanubia Region) for example, in 2003 belonged to cluster 3, characterized by manufacturing activities and the secondary sector. Instead, in 2007 the role of the secondary sector in GDP and employment decreased (-7% , -9%), as well as p.c. GDP (-10%), while employment in the primary sector, its contribution to GDP and agricultural productivity increased (+ 111%, +22%, +57%). The number of recipients of social support doubled and the long-term unemployment rate increased by 42%.

The county of Heves, included in the cluster Backwardness with Nógrád in 2003, in 2007 joins the cluster Diversification: land price doubled, the amount of tourist accommodations increased (+6%, +5.7%), as well as temporary immigration (+28%) and employment in the primary sector (+32%), but not its role on GDP (-34%). Investments in R&D grew by 55% and the value of industrial production increased by 88%.

In the same period, the county of Hajdú Bihar moved from the Agricultural activity cluster to the Lagging rurality cluster. The number of recipients of social support and long-term unemployment increased (+40%, +112%) while p.c. GDP and employment rate decreased (-7%, -3%). Employment in the primary sector and in PA increased (+32%, +3%), similarly to the part-time agriculture (+10%) and t the average farm size (+22%). Employment in the secondary sector and its role on GDP dropped (-11%, -17%).

Finally, Nógrád confirmed in 2007 its position as county most lagging behind: p.c. GDP and employment in the secondary sector decreased (-17%, -4.2%), while the number of recipients of social support, the ageing index and long term unemployment increased (+43.4%, +12% and +31%).

Some variables play a very important role in the characterization of clusters and their description, both for the years 2003 and 2007, and they are mainly linked to employment, living conditions, and to the primary sector (Table 5.5.1).

Table 5.5.1: Variation 2007/2003 (%) for selected variables

	P.c. GDP	Net earnings	Recipients of social support	Long term unemp	Empl rate	Empl. primary sector	Empl. secondary sector	Primary sector on GDP	Secondary sector on GDP	Part time agri.
Fejér	0.6	1.4	44.9	47.9	-3.4	109.2	1.5	-7.2	10.0	1.8
Veszprém	-4.0	-0.7	51.6	47.9	-0.2	117.4	-3.9	14.5	2.7	6.3
Gyor-Moson-Sopron	-6.1	1.8	68.2	40.5	2.2	17.5	-1.7	-17.7	10.1	16.3
Vas	-11.8	2.2	83.5	40.5	-4.0	89.6	-7.7	66.3	-14.0	13.9
Zala	-13.9	-0.2	115.5	40.5	5.3	122.0	-14.8	-6.2	-8.3	19.0
Baranya	-4.1	2.4	25.5	23.4	0.4	8.0	0.9	-8.3	-0.3	12.8
Borsod-Abaúj-Zemplén	3.7	1.3	19.7	31.0	1.4	102.2	2.4	-22.2	15.4	3.7
Heves	-2.3	2.1	42.1	31.0	-2.3	32.1	1.0	-34.4	11.6	4.6
Nógrád	-16.9	-0.8	43.4	31.0	-3.7	189.5	-4.2	-16.4	-3.4	4.1
Szabolcs-Szatmár-Bereg	-7.1	-0.5	38.8	111.9	-0.7	16.8	-4.7	-11.6	5.8	2.7
Somogy	-12.1	1.2	75.2	23.4	-10.4	70.0	-5.3	0.2	-7.9	14.3
Tolna	-2.7	1.4	62.0	23.4	-4.1	55.2	2.2	1.5	12.6	7.5
Hajdú-Bihar	-7.1	1.0	40.4	111.9	-2.9	32.1	-11.4	7.6	-17.2	10.1
Jász-Nagykun-Szolnok	-2.1	0.0	65.8	111.9	0.2	113.1	-7.4	20.2	3.7	14.2
Bács-Kiskun	-3.1	-0.5	73.3	35.6	-2.2	21.2	-9.7	-14.2	4.8	5.5
Békés	-6.8	-0.7	59.2	35.6	5.5	30.6	-12.9	21.1	-3.1	13.8
Csongrád	-4.9	0.9	77.0	35.6	7.9	17.5	-12.3	11.9	5.1	10.2

The extent of variation in the living conditions between the Hungarian rural counties, for 2003 and 2007, is provided by the calculation of the coefficient of variation (COV) in Table 5.5.2. The rationale is that the lower the COV, the smaller is the difference in the values between counties, and therefore the more similar are the counties with respect to that indicator. Some of the indicators are relative measures (e.g. participation rate, unemployment rate); the most are absolute measures (e.g. number of pharmacies, television contracts).

Table 5.5.2: Coefficient of Variation for living conditions between the Hungarian counties (NUTS 3)

	2003	2007
Average monthly net earnings, HUF	10	9
Value investments, million HUF	171	191
Number of pharmacies	71	74
Number of retail shops	72	77
Number hospital beds	108	103
Monthly gas consumption per household member	17	17
Electricity consumption per household consumer	10	10
Cinema admissions (.000)	241	247
Number of television contracts	106	100
Dwellings stock	78	79
Tourist arrivals	200	181
Passenger cars	89	83
Number of shopping centres	234	180
Number of registered enterprises	116	114
Recipients of jobseekers allowance	36	45
Employment rate (%)	9	10
Inactive population (.000)	62	62
Participation rate (%)	8	7
Average recipients of social assistance	110	93
Number of pensioners	66	65
People with tertiary education	75	75
Unemployment rate	31	39

Source: own elaborations on HCSO data

In 2003, the highest differences between counties occurred in relation to cinema admissions and the number of shopping centres, while the lowest was detained by the participation rate and the employment rate. In 2007, the highest dispersion occurred again for cinema admissions, followed this time by the value of investments and the number of tourist arrivals, while the lower variation was recorded again for the participation rate. Between 2003 and 2007, the COV decreases in relation to the number of hospital beds, the number of tourist arrivals and shopping centre, but it increases for the number of recipients of jobseekers allowance and for the unemployment rate. It is interesting to note that, even if the analysis is conducted on all the Hungarian counties including the capital town Budapest, where the average living conditions are better than in the rest of the country, the value of dispersion in the average monthly salary and in the electricity consumption is very low in the years considered.

CONCLUSIONS

In seed time learn, in harvest teach, in winter enjoy.
W. Blake

The transition process first, and the EU Eastern enlargement later, were accompanied by fears and great expectations: the former ones fully realized (inequality and poverty spread, and the economy didn't stabilize), while the latter ones were unattended. The analysis of the transition process in the CEEc and in the FSU, and the preliminary assessment of the EU enlargement for Hungary show that, in order to be effective in the medium to long term, the reform policies need to be targeted to the local reality for which they are prescribed. Moreover, they should follow a clear path in which the consequentiality of interventions matters, and they require be monitoring and evaluating through the years, according to a set of accountable and timely updated indicators. In both processes, the "one fits all" solutions introduced through a top-down approach for policy transfer via emulation, according to the prescriptions of the neoclassical models, didn't return the awaited results. Instead, they even threatened the future development process. In fact, at the time of the EU membership in 2004, after fifteen years of external support, in Hungary several problems remained unsolved, especially in the agricultural and rural areas.

The analysis of the Hungarian case study provides preliminary interesting evidence on the effects of the external policy advices and governmental choices on the promising initial results of the first years of transition, addressing the characteristic of the growth path followed by the Hungarian counties, and the CAP contribution to convergence. The limitations of official statistics, especially at disaggregated level, influenced the choice for methodologies (mainly multivariate statistics and non-parametric models) and the time series used.

In Hungary, the policies introduced in the EU pre-accession period (1997-2003) and in the first programming period (2004-2007) were not able to boost convergence within the country; the initial p.c. GDP growth slowed down after the EU membership, in a period characterized by expansive economy on the international markets. The non-parametric convergence analysis performed on p.c. GDP PPS applying the Quah's stochastic kernel shows clear polarization: a small group of counties (NUTS 3) headed by Budapest grows fast, while the other, largest group mainly composed by the rural and less developed counties, tend to converge internally at lower income levels.

Moreover, the CAP introduction, which was accompanied by hearty discussions in the EU about the budget redistribution to the NMS, played a limited role for the development of the Hungarian agricultural and rural counties, because of the low measures ability to target the peculiarities and needs of the most agricultural and rural counties. In fact, the non-parametric convergence analysis conditioned to the SAPS direct payments (the first data available on from the Hungarian national Payment

Agency) shows that the marginal distribution of p.c. GDP PPS conditioned to direct payments is very similar to the unconditioned ones for the same years (2004 and 2008). The analysis of the Hungarian farmers' applications for SAPS payments evidenced that the CAP introduction was accompanied by inequality issues, low information provided to farmers by the national agencies, and a lack of measures targeting, as the main beneficiaries resulted the bigger farms located in economically active counties. Thus, the CAP support was not able to set a strong foundation for the structural transformation required in the agricultural and rural areas, decreasing the internal divergence and the development gap. Moreover, even if the most of the CAP support was directed to pillar I in order to promote modernization and competiveness of the agri-food sector, it had only a limited impact on the promotion of agricultural productivity. Convergence in agricultural labour productivity among the Hungarian counties between 2000 and 2007, calculated with a parametric methodology (σ-convergence) due to the lack of time series, didn't occur: Budapest (an urban county) showed the best performance, while the weakest growth in agricultural labour productivity was recorded by the most lagging behind and rural counties (Nógrád, Heves, Borsod).

Sometimes, the CAP introduction in the NMS stressed the problems emerged in transition: this is the case of the Hungarian diary, animal production and horticultural sectors, which were not able to successfully restructure and organize the food chain. Even in the case of successful sectors, as crops production, two main features of the Hungarian agriculture can be highlighted: the persistence of subsistence and semi-subsistence agriculture, and the problems linked to small farmers' poverty and social exclusion in remote rural areas.

These results were deeply influenced by the limited knowledge of agricultural and rural areas for which the intervention was prescribed, because of the limited data availability and accountability at a sub-regional level, and the lack of a common definition of rurality at the EU level. The currently most used area classification methodology, provided by OECD and based on population density, widely misreports the presence of rurality within the countries, thus preventing from the identification of their development bottlenecks. The adoption of an alternative classification, which moves from the adjusted rurality methodology and enriches it with meaningful socio-economic demographic agricultural variables, available yearly at the NUTS 3 level, allows us to catch the changing characteristics of agricultural and rural areas, creating a basis for the introduction of more targeted policies. Its application to the Hungarian rural counties before the EU membership (2003) and after the end of the first EU programming period (2007), provides a better identification of the changes occurred at the local level. Ten Hungarian counties up to twenty were classified as intermediate rural, and the remaining seven as predominantly rural. The previous author's study on all the Hungarian counties for the same period 2003-2007 evidenced the decline of the industrial sector and an increased role of agriculture. The analysis conducted on rural counties partially confirms it: the declining role of industry is true also on the Western border (Vas, Zala, Veszprém) previously characterized by growing secondary and tertiary sectors, and low productive

agriculture is expanding, particularly in Eastern Hungary (i.e. Hajdú-Bihar). At the same time, natural and cultural attractiveness of the Southern counties could be better valorised, thanks to the presence of young and skilled people, and the increased role of the tertiary sector. Then, marginalization increased in the already worse off counties located in the Northern Great Plain and in Northern Hungary (Nógrád in particular).

A serious limit for the application of policy impact analysis is represented by the lack of accountable, disaggregated, and periodically updated data on farm performance, on the socio-economic trends and the new CAP objectives. These data, together with an easier access to the information collected by the national paying agencies, at the regional and sub-regional level, would contribute to assess the EU role (if any). Given these statistical limitations, future RD policy evaluations could return better results if conducted using a "mixed approach" moving from the methodology proposed by Terluin et al. (2011), which integrate quantitative analysis into the case-study approach. Analysis of data through multivariate methodologies offers results that are easy to be read and to be interpreted by policy makers involved in policy drafting and implementation, and by project managers. In this way, it would be possible to overcome the complexity of interpretation of the rural development measures and indicators proposed by the EU within the CMEF. This point fulfils the need, also recognized by the EC, to better communicate and disseminate results from RD monitoring and evaluation, and for the introduction of more targeted policies.

The CAP reforms implemented in the last decade were based on decoupling support from production, they paid higher attention to the agri-environmental conditions, and they also introduced an innovative approach in the RDP, especially in policy drafting and evaluation. By the way, while the inequality in CAP payments in favour of pillar I and the limited planning and managing abilities of the national institutions and authorities persisted, the living conditions in rural areas didn't improve considerably, as evidenced by the EC in 2010 (the European Year for Combating Poverty and Social Exclusion).

At the same time, the new CAP regulation for 2014-2020 presented in October 2011 doesn't contemplate main changes in the rationale for support, and in budget distribution between the two pillars which remains mostly unchanged. The persisting inequality in CAP payments between the two pillars and between the EU-27 (in favour of the stronger ones) is linked to another historical CAP feature, the lack of transparency. In fact, more transparency at all the policy making levels, from a wider stakeholders' participation to the agenda of policy reforms to higher data availability and comparability, would pave the way for the introduction of an epochal CAP reform, finally able to contribute effectively to a balanced and fruitful development path in the enlarged EU of the future. In fact, agricultural and rural areas play a main role in the current international challenges with regard to climate change, food safety and food security, resource constraints and poverty reduction.

In particular:

- the increasing urbanization trend (Antrop, 2004; FAO, 2010; Zasada, 2011) redefines the urban, peri-urban and rural geography, affecting the agriculture, socio-economic, environmental and landscape system of relationships. The

expansion of urban areas in Europe, and the change of citizens' consumption preferences towards local and fresh food, induce changes in the food production (an important share of agricultural activities now takes place in highly urbanized settings), and promote the development of technological and organizational innovation. In fact, more and more urban consumers and producers actively involve through networking in new forms of sustainable food chains, i.e. the short food supply chain (Chiffoleau, 2009; Dubuisson-Quellier et al., 2011), setting up local consumptions groups, farmer markets and urban areas for horticulture. The information is fast shared through social networks that connect consumers and producers, and make consumers aware of the product origin, traceability and the production process;

- growing attention is paid by citizens in the preservation of public goods and quality of life, both in urban areas (i.e. greening the cities) and in peri-urban and rural areas, which are not considered only as commuting areas, but also enjoyed for their recreational (parks, nature) and eno-gastronic routes, agro-tourisms and traditional attractiveness (organic farming, didactic farms);
- this new consumers-producers relationship develops in the awareness of the current constraints to the use of natural resources (e.g. land and water) and the need to face the environmental challenge, supporting innovative sustainable production and consumption solutions (less invasive fertilizers, containment of GHG, waste reutilization and recycling). Urban and peri-urban agriculture, through both technological and social innovation, can play an important role in mitigating climate change (Nauta et al., 1999; Prins et al., 2005) through nutrient recycling, waste reuse, sustainable income development opportunities, helping the adaptation to climate change, and building more resilient urban areas.

Thus, a more comprehensive framework of targeted cohesion, structural, agricultural and rural development policies, based on a deeper knowledge of the local reality waits to be promoted and implemented, moving from the lessons learnt derived from sounder policy evaluation. This new integrated approach would spur convergence of lagging behind and declining rural and peri-urban areas, contributing to the promotion of better quality of life in the EU, and surging as an international model of sustainable development.

REFERENCES

Aghion, P., Blanchard O. (1994): On the Speed of Transition in Central Europe. NBER, Macroeconomics Annual, pages 283-320.

Anania, G. Tarsitanio, A. (1995): Tecniche di Analisi Statistica Multivariata per l'Individuazione dei Sistemi Agricoli Territoriali in Italia. In: Cannata, G., *I Sistemi Territoriali Agricoli degli Anni '90*, CNR-Raisa, Rubettino, Cosenza.

Anderson, K., Swinnen, J.F.M. (2008): Distortions to Agricultural Incentives in Europe's Transition Economies, Washington DC: World Bank.

Antrop, M. (2004): Landscape change and the urbanization process in Europe. *Landscape and Urban Planning* 67 (2004), pages 9–26.

Aslund, A., Dabrowski, M. (ed.), 2007: Europe after Enlargement. Cambridge Books, Cambridge University Press, number 9780521872867, 3.

Aukutsionek S., Kapelinshnikov R. (1996): Labour Hoarding in Russian Industry. *The Russian Economic Barometer*, vol. V, n. 2, pages 3-15.

Balcerowicz, L. (1994): Economic Transition in Central and Eastern Europe: Comparisons and Lessons. *Australian economic Review*, vol. 27, Issue 1, pages 47-59, January.

Balcerowicz, L. (1995): Socialism, Capitalism, Transformation. Central European University Press, Budapest.

Barro, R. J. (1991). Economic Growth in a Cross-Section of Countries. *Quarterly Journal of Economics*, 106, pages 407-443.

Barro, R. J., Sala -i- Martin, X. (1991): Convergence across States and Regions. *Brookings Papers Economic Activity*, 1.

Barro, R. J., Sala -i- Martin, X. (1992): Convergence. *Journal of Political Economy* 100, n. 2, pages 223-251.

Bartolini, P. and Montanari, M (2008): Sviluppo e Povertà nelle Regioni dell'Unione Europea. XXIX Conferenza Italiana di Scienze Regionali.

Baumol, W. (1986), Productivity Growth, Convergence and Welfare: What the Long Run Data Show. *American Economic Review*, 76, pages 1072-1085.

Bernard A.B., Durlauf, S. N. (1995): Convergence of International Output Movements. *Journal of Applied Econometrics*, 10, pages 97-108.

Bernini Carri, C., Sassi, M. (2002): The Agricultural Convergence Hypothesis on Regional Base in Europe: A Parametric and Non-Parametric Approach. Paper prepared for presentation at the Xth EAAE Congress "Exploring Diversity in the European Agri -Food System", Zaragoza (Spain).

Blanchard, O., Froot, K.A, Sachs, J.D. (1994): The Transition in Eastern Europe. University of Chicago Press, vol. 1, pages 284.

Blandford, D., Hill, B. (2008): Directions in Rural Development Policy – Lessons from both Sides of the Atlantic. *Eurochoices*, 7(1), pages 6-12.

Blandford, D., Hill, B. (2010): The Case for Indicators in Rural Development Policy Evaluation. *EuroChoices*, 9(2), pages 37-38.

Boeri, T. (1997). What Can We Learn from the Experience of Transitional Economies with Labour Market Policies? William Davidson Institute Working Papers Series 62, William Davidson Institute at the University of Michigan.

Boeri, T. (2000): Optimal Speed of Transition 10 Years After. CEPR Discussion Papers 2384, C.E.P.R. Discussion Papers.

Boeri, T., Terrell, K. (2002): Institutional Determinants of Labour Reallocation in Transition. *Journal of economic Perspectives*, Feb. 2002, vol. 16, n. 2.

Bogdanov N., Meredith D., Efstratoglou, S. (2007): A Typology of Rural Areas in Serbia. In: Tomić D. and Sevarlić M. (ur.) *Development of Agriculture and Rural Areas in Central and Eastern Europe*. Proceedings from 100th Seminar of EAAE, Novi Sad, pages 553-562.

Bogdanov, N. (2007): Small Rural Households in Serbia and Rural non-Agricultural Economy. Ministry of agriculture, forestry and water management of Republic of Serbia and UNDP, Belgrade.
Boggio, L., Seravalli, G. (1999): Sviluppo e Crescita Economica – Un'Introduzione, Milano: McGraw-Hill.
Boyko, M, Shleifer, A., Vishny, R. (1996): A Theory of Privatization. *Economic Journal*, March.
Bradley, D., Dwyer, J., Hill, B. (2010): The Evaluation of Rural Development Policy in the EU. *Eurochoices*, 9(1), pages 15-19.
Bradley, D., Hill, B. (2009): Lessons from the Evaluation of EU Rural Development Policy: What Approaches Have Been Used and What Can We Learn from the Results in Terms of Evaluation Procedures? Paris: paper presented at the OECD workshop "Aiding the process of agricultural policy reform: evaluation of public policies for rural development", June, pages 15-16.
Brainerd, E. (1998): Winners and Losers in Russia's Economic Transformation. *American Economic Review* 88, 5, pages 1094-1116, December 1998.
Brasili, C. (edt.) (2005): Cambiamenti Strutturali e Convergenza Economica nelle Regioni dell'Unione Europea. Clueb Editore.
Brasili, C., Fanfani, R. (2007): Regional Differences in Agriculture and Rural Areas: the Italian and Chinese Case Studies. Presented at FAO, Rome.
Bresser Pereira, L., Maravall, J.M., Przeworski, A. (1993): Economic Reforms in New Democracies: a Socialdemocratic Approach. Cambridge: Cambridge U. Press, 1993.
Brown, D. J., Earle, J. S. (2002): Job Reallocation and Productivity Growth under Alternative Economic Systems and Policies: Evidence from the Soviet Transition. IZA Discussion Papers 644, Institute for the Study of Labour (IZA).
Brown, D., Earle, J. (2001). Gross job flows in Russian Industry Before and After Reforms: has Destruction Become More Creative? CEPR, DP 2951.
Cannata, G. , Forleo, M.B. (1998): I Sistemi Agricoli Territoriali delle Regioni Italiane, CNR-IPRA.
Canova, F., Marcet, A. (1995): The Poor Stay Poor: Non-Convergence across Countries and Regions, CEPR Discussion Papers 1265, C.E.P.R. Discussion Papers.
Carree, M., Klomp, L. (1997): Testing the Convergence Hypothesis: a Comment. *The Review of Economics and Statistics*, 4, pages 683-686.
Chapman, S., Meliciani, V. (2011): Income Disparity in the Enlarged EU. Socio-economic, Specialization and Geographical Clusters. *Tijdschrift voor economische en sociale geografie.*
Chiffoleau, Y. (2009): From Politics to Co-operation: the Dynamics of Embededeness in Alternative Food Supply Chains. *Sociologia Ruralis*, 49, 3, pages 218-235.
Commander, S. (1997): The Impact of Transition on Inequality. *The Economics of Transition* 5, 2, pages 499-504.
Crescenzi, R., Fabiani, G. (2007): Globalizzazione e Convergenza dei Sistemi Agroalimentari delle Economie Industriali. Working Paper n. 74/2007, Collana del Dipartimento di Economia, Università degli Studi Roma Tre.
Csáki, C., Holger, K. (2004): The Agrarian Economies of Central-Eastern Europe and CSI. An Update on Status and Progress in 2004. WB Report, WB: Washington D.C.
Csáki, Cs., Jambor, A. (2010): Five Years of Accession: Impacts on Agriculture in the NMS, EuroChoices, The Agricultural Economics Society and the European Association of Agricultural Economists, vol. 9(2), pages 10-17, 08.
Csáki, Cs., Lerman, Z. (2000): Agricultural Transition Revisited: Issues of Land Reform and Farm Restructuring in East Central Europe and the Former USSR, WB: Washington D.C.
Csáki, Cs., Nash, J. (1999): The Agrarian Economies of Central and Eastern Europe and the Commonwealth of Independent States, 1997, World Bank Discussion Paper n. 387, 1998.
Csepeli, G., Örkény, A. (1992): From Unjust Equality to Just Inequality. *The New Hungarian Quarterly*, 1992/126. 71.

Dąbrowski, M. (1997): The Reasons for the Collapse of the Ruble Zone, in L.T.
Dąbrowski, M. (ed.) (1999): Disinflation, Monetary Policy and Fiscal Constraints. CASE Network Reports 0016, CASE-Center for Social and Economic Research.
Davidova, S., Fredriksson, L., Bailey, A. (2009): Subsistence and semi-subsistence farming in selected EU new member states. Agricultural Economics, vol. 40, Issue Supplement 1, pages 733–744, November 2009.
de Soto, Hernando (2000): The Mystery of Capital: Why Capitalism Triumphs in the
Debatisse, M.L. (1998): Hungary: a Successful Agriculture and Food Economy in Permanent Search for Higher Competitiveness. The World Bank: Europe and Central Asia Regional Office, Mimeo.
Dewatripont, M., Roland, G. (1992): Economic Reform and Dynamic Political Constraints. *Review of Economic Studies*, 59(4), pages 703–30.
Dollar, D., Kraay, A. (2000): Growth is Good for the Poor. Development Research Group, WB: Washington D.C.
Dubuisson-Quellier, S., Lamine, C., Le Velly, R. (2011): Citizenship and Consumption: Mobilization in Alternative Food Systems in France. *Sociologia Ruralis*, 51, 3, pages 304-323.
Dwyer, J., Hill, B. (2009): Rural (and Regional) Development Policies in the EU and their Evaluation. Paper presented at the OECD workshop "Aiding the process of agricultural policy reform: evaluation of public policies for rural development", Paris, June, 15-16.
Easterly, W. (2002): The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics. MIT Press, pages 356.
EBRD (1994): *Transition Report 1994*, London.
EBRD (1999): *Transition Report 1999*, London.
EC (2002): *Communication from the Commission on impact assessment*; Brussels: COM (2002) 276 final.
EC (2006): Rural *Development 2007-2013 Handbook on Common Monitoring and Evaluation Framework; Guidance document*. Brussels: DG for Agriculture and Rural Development.
EC (2008): *Convergence Report 2008*. European Economy 3/2008.
EC (2009): *Five Years of an Enlarged European Union*.
EC (2010): *Convergence Report 2010*. European Economy 3/2010.
EC Communication (2011): *The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future*.
Elek, S., Fertő, I., Forgács, Cs. (2008): Who receive rural development measures in Hungary? Paper presented at 12th Congress of the European Association of Agricultural Economists – EAAE 2008.
Enlarged European Union: a Non-Parametric Approach. *Tijdschrift voor Economische en Sociale Geografie* 5, pages. 564-584.
Ertur, C., Koch, W. (2006): Regional Disparities in the European Union and the Enlargement Process: an Exploratory Spatial Data Analysis, 1995-2000. *The Annals of*
European countryside, *Zemedelska Ekonomika*, 45, 1999 (2): 79-84.
Experience of the Economies in Transition, CASE Reports n. 16.
Ezcurra, R., Pascual, P., Rapun, M. (2007): The Dynamics of Regional Disparities in Central and Eastern Europe during Transition. *European Planning Studies* 15, pages 1397-1421.
Ezcurra, R., Rapun, M. (2007): Regional Dynamics and Convergence Profiles in the
Fanfani, R., Mazzocchi M. (1999). I Metodi Statistici per L'Analisi dei Sistemi Sgricoli Territoriali. Serie Ricerche, n. 2 Dipartimento di Scienze Statistiche "Paolo Fortunati" Università degli studi Bologna.
FAO (2010): *Urban and Peri-Urban Horticulture Development in Practice: the FAO's Approach*.
FAO (2011): *Food, Agriculture and Cities: the Challenge of Food and Nutrition Security, Agriculture and Ecosystem Management in an Urbanizing World*.
Farm Households in Honduras. *World Development*, 29(3), pages 549-560.
Fischer, S., Gelb, A. (1991): The Process of Socialist Economic Transformation. *The Journal of Economic Perspectives*, vol. 5, Issue 4, pages 91-105.

Food Production for Assessment of Poverty, and Policy Targeting: Evidence from Romania. *Food Policy*, 30, pages 205-223.
Forgács, Cs. (2011): Focusing Rural Development in Central and Eastern European Countries. Studies in Agricultural Economics, 2010, issue 111.
Förster M.F., Toth, I.G. (1997): Poverty, Inequalities and Social Policies in the Visegrad Countries. *The Economics of Transition*, The European Bank for Reconstruction and Development, vol. 5(2), pages 505-509, November.
Friedman, J. (1972): The Spatial Organization of Power in the Development of Urban Systems. *Development and Change*, 4, pages 12-50.
Garibaldi, P., Brixiova, Z. (1998): Labour Market Institutions and Unemployment Dynamics in Transition Economies. IMF Staff Papers, Palgrave Macmillan, vol. 45(2), pages 269-308, June.
Garner, T., Terrell, K. (1998): A Gini Decomposition Analysis of Inequality in the Czech and Slovak Republics. *The Economics of Transition* 6, 1, pages 23-46.
Gerschenkron, A. (1962): Economic Backwardness in Historical Perspective, Bellknap Press, Cambridge, MA.
Gomulka, S. (1971): Inventive Activity, Diffusion and the Stages of Economic Growth, Monograph, Institute of Economics, Aarhus, Denmark.
Gorton, M. Hubbard, C., Hubbard, L. (2009): The Folly of European Union Policy Transfer: Why the Common Agricultural Policy (CAP) Does Not Fit Central and Eastern Europe. Regional Studies, 43:10, pages 1305-1317
Green, D.J., Vokes, R.W.A. (1998): Agriculture and the Transition to the Market in Asia. *Journal of Comparative Economics*.
Gross, D., Steinherr, A. (2004): Economic Transition in Central and Eastern Europe: Planting the Seeds. Cambridge University Press, 2 Feb 2004, pages 362.
Hayek, F. (1945): The Use of Knowledge in Society. *American Economic Review* XXXV, n. 4. pages 519-30.
Heidenreich, M., Wunder, C. (2008): Patterns of Regional Inequality in the Enlarged Europe'. *European Sociological Review* 24(1), pages 19–36.
Hill, B. (2000): Farm Incomes, Wealth and Agricultural Policy, Third edition. Avebury, Aldershot, ISBN 0-7546-1132-9 (Second edition 1996, ISBN 1-85972-206-7).
Hill, B. (2003): Rural Data and Rural Statistics. Report to the Economic and Social Research Council. Available at www.defra.gov.uk.
Hill, B. (2008): Presidential Address: Some Economics of Public Statistics. *Journal of Agricultural Economics*, vol. 59, n. 3, pages 387-420.
Hotelling H. (1993). Analysis of a Complex of Statistical Variables into Principal Components. *Journal of Educational Psychology* n.24, pages 417-441.
Hubbard, C. (2009). Lessons of Best Practice in Managing Agricultural and Rural Transition in an Enlarged EU. Proceedings from IAMO Forum 2009.
Hungarian Ministry of Rural Development (2008): *The Hungarian Agriculture and Food Industry in Figures 2007.*
Hungarian Ministry of Rural Development (2009): *The Hungarian Agriculture and Food Industry in Figures 2008.*
Hungarian Ministry of Rural Development (2010): *The Hungarian Agriculture and Food Industry in Figures 2009.*
Iara, A., Traistaru, I. (2003): Integration, Regional Specialization and Disparities in EU Accession Countries: Evidence from Hungary, Paper prepared for the Conference on "Cohesion Reform in a Larger Union", College of Europe, Brugge, Mimeo.
IMF (1999): *Russian Federation: Recent Economic Developments*. IMF Staff Country
Istat (2010): *Misure di produttività. Anni 1980-2009.* Roma, Italia.
Johnson, S., Kaufmann, D., Shleifer, A. (1997): The Unofficial Economy in Transition. *Brookings Papers on Economic Activity* (2, 1997), pages 159-221.
Jolliffe I. T. (1986): Principal Component Analysis. Spinger-Verlag, New York

Kaldor, N. (1970): The Case for Regional Policies. *Scottish Journal of Political Economy*, 17, pages 337-347.
Katona Kovács, J. (2007): The Effect of CAP Payments on Territorial Cohesion in the North Great Plain Region of Hungary, Proceedings of the EAAE-IAAE 104th Seminar, Corvinus University, Budapest (HU), IAMO Publications, 2007
Khomenko, T. (2007): Measurement of the non-observed economy in transition economies with special references to the CIS countries. Department of Economic Statistics, CISSTAT.
Klecka, W.R. (1980): Discriminant Analysis. Newbury Park, CA: Sage Publications.
Koen, V., De Masi, P. (1997): Prices in the Transition: Ten Stylized Facts. IMF Working Paper, WP/97/158.
Konings, J., Lehmann, H., Schaffer, M. (1996): Job Creation and Job Destruction in a Transition Economy: Ownership, Firm Size and Gross Job Flows in Polish Manufacturing 1988-91. *Labour Economics*, pages 299-317.
Kornai, J. (1980): The Dilemmas of a Socialist Economy: The Hungarian Experience. *Cambridge Journal of Economics*, Oxford University Press, vol. 4(2), pages 147-57, June.
Kornai, J. (1986): The Hungarian Reform Process: Visions, Hopes, and Reality. Journal of Economic Literature, American Economic Association, vol. 24(4), pages 1687-1737.
Krueger, A.O (1993): Political Economy of Policy Reforms in Developing Countries. Mass: MIT Press.
Krugman, P. (1991): Geography and Trade, MIT Press, Cambridge, MA.
Kuznets, S. (1955): Economic Growth and Income Inequality. *American Economic Review*, vol. 45, pages 1-28.
Lackenbauer, J. (2004): Catching up, Regional Disparities and the EU Cohesion Policy: the Case of Hungary. Uni Bamberg.
Lackó, M. (2000): Hidden Economy- An Unknown Quantity? Comparative Analysis of Hidden Economies in Transition Countries, 1989-95. *Economics of Transition* (8, 2000), pages 117-149.
Leonardi, R. (1995): *Convergence, Cohesion and Integration in the European Union*, London: MacMillan.
Lerman, Z, Feder, G. (2004): Agriculture in Transition: Land Policy and Evolving Farm Structures in Post-Soviet Countries. Lanham, Md.: Lexington.
Lerman, Z., Kislev, K. et al. (2003): Agricultural Output and Productivity in the Former Soviet Republics. *Economic Development and Cultural Change*, 51 (4), pages 999-1018.
Lichtenberg F.R.(1994): Testing the convergence hypothesis. *The Review of Economics and Statistics* 76(3), pages 576-579.
Liefert, W. (2002). Changes in Agricultural Markets in Transition Economies. Market and Trade Economics Division, Economic Research Service, and Johan Swinnen, Katholieke Universiteit Leuven. Agricultural Economic Report n. 806.
Linz S., Krueger, G. (1998): Enterprise Restructuring in Russia's Transition Economy: Formal and Informal Mechanisms. *Comparative Economic Studies*, vol. 40, n. 2
Lipton, D., Sachs, J. (1990): Creating a Market Economy in Eastern Europe: the Case of
Macours, K., Swinnen, J.F.M. (2000): Causes of Output Decline in Economic Transition: The Case of Central and Eastern European Agriculture. *Journal of Comparative Economics* 28 1, pages 172-206.
Mantino, F. (2010): Understanding Delivery Mechanisms in EU Rural Development Policies: an Institutional Approach. Plenary presentation. Proceedings of the 118th EAAE Seminar "Rural development: governance, policy design and delivery", Ljubljana, Slovenia, 25-27 August 2010.
Margarian, A. (2010): Counterpoint: A Theoretical Foundation of Rural Development Interventions ans Evaluation is Needed. *EuroChoices* 9(2), pages 35-37.
Mazzocchi, M. (2008): Statistics for Marketing and Consumer Research. SAGE Publications Ld.

McAuley, A. (1991): The Economic Transition in Eastern Europe: Employment, Income Distribution, and the Social Security Net. Oxford Review of Economic Policy, vol. 7, n. 4, pages 93-105.
Midmore, P. (2009): Evaluation Approaches to European Farm Diversification Policy: A Review. Paper presented at the OECD workshop "Aiding the process of agricultural policy reform: evaluation of public policies for rural development", Paris, June, 15-16.
Milanovic, B. (1996): Income, Inequality and Poverty during Transition. Research Papers n. 11, Transition Economies Division, Policy Research Department, World Bank, Washington, D.C.
Milanovic, B. (1998): Income, Inequality, and Poverty during the Transition from Planned to Market Economies. WB: Washington D.C.
Monasterolo, I. (2008): The European Regional Policy in Hungary: an Evaluation of the Objectives and Instruments for the Cohesion. Proceedings (vol. II) of the IAAE-EAAE Joint Seminar Agricultural Economics and Transition: What was expected, what we observed, the lessons learned. Edited by Leibniz Institute of Agricultural Development in Central and Eastern Europe, IAMO.
Monasterolo, I., Coppola, N. (2010): More targeted rural areas for better policies. Proceedings of the 118th EAAE Seminar "Rural development: governance, policy design and delivery", Ljubljana, 25-27 August 2010.
Monasterolo, I., Pagliacci, F. (2011): Mapping Changes on Agricultural and Rural Areas: an Ex-Post Evaluation of the EU Membership for Hungary. Paper presented at the 122nd EAAE Seminar, Ancona, February 17-18, 2011.
Nauta, W.J., Van Der Burgt, G.J., Baars, T. (1999): Partner Farms: a Participatory Approach to Collaboration between Specialised Organic Farms. In: J.E. Oleson (Ed.), Designing and Testing Crop Rotations of Organic Farming, Proceedings of an International Workshop. DARCOF Report n. 1, Danish Research Centre for Organic Agriculture, DARCOF, Foulum, pages 149–158.
Nemes, G. (2003): Vidékfejlesztés és előcsatlakozási felkészülés Magyarországon. *Közgazdasági Szemle*, L. évf., 2003. január (56–75. o.).
Nickel, K. M. (2005): Inequality in Transition Economies: Sharing the Benefits and Burdens of Post-Communist Change.
OECD (1996): *Creating rural indicators for shaping territorial policy*. OECD, Paris.
OECD (1996): *Lessons from Labour Market Policies in the Transition Countries*, OECD Proceedings, Paris.
OECD (2001): *Measuring productivity. Measurement of Aggregate and Industrial Level Productivity Growth*. OECD, Paris.
OECD (2005): *Policy Brief: Farm Household Income – Towards Better-Informed Policies*. OECD, Paris.
OECD (2006): *Understanding National Accounts*. OECD, Paris.
OECD (2011): *Evaluation of Agricultural Policy Reforms in the European Union*. Paris.
Orlowski, D. Salvatore (eds.), Trade and Payments in Central and Eastern Europe's
Overman, H.G., Puga, D. (2002): Unemployment Clusters Across Europe's Regions and Countries. *Economic Policy* 34, pages 115-147.
Paas, T., Kuusk, A., et al. (2007): Econometric Analysis of Income Convergence in Selected EU Countries and their NUTS 3 Level Regions. Working Paper Series 60, University of Tartu, Faculty of Economics and Business Administration.
Pearce, D., Davis, J. (2000). The Role of the Non-Farm Rural Sector in the Reconstruction of the Balkans. Special edition of MOST-MOCT: Economic Policy in Transition Economies, August 2000.
Perkins, D. (1994): Completing China's Move to the Market. *Journal of Economic Perspectives* 8.2 (Spring), pages 23-46.
Perroux, F. (1975): La Notion de Pôle de Croissance. *Economie Appliquée*, 1-2, pages 301-324.

Petrakos, G., Psycharis, Y., Kallioras, D. (2005): Regional Inequalities in the EU Accession Countries: Evolution and Challenges. Integration, Growth and Cohesion in an Enlarged European Union. ZEI Studies in European Economics and Law.
Petrovici, D.A., Gorton, M. (2005): An Evaluation of the Importance of Subsistence
Piňera, J.: Chile. In Williamson, J., (eds.) 1994.
Poland. Brookings Papers on Economic Activity, 1, pages 75-133.
Prins, U., de Wit J., Nauta, W.J. (2005): Combining On-Farm Participatory Research Methodologies with Modelling in Order to Create a Regionally Based Organic Agriculture in Holland. Researching Sustainable Systems: Proceedings of the Scientific Conference of ISOFAR in Adelaide (U. Köpke et al. eds.), pages 489-492, ISOFAR, Bonn, Germany.
Quah, D. (1993): Empirical Cross-section Dynamics in Economic Growth. *European Economic Rewiew.*
Quah, D. (1995): Regional Convergence Cluster across Europe, Discussion Paper 274, Centre for Economic Performance, LSE.
Quah, D. (1996): Convergence as Distribution Dynamics (With or Without Growth), Discussion Paper 317, Centre for Economic Performance, LSE.
Quah, D. (1997): Empirics for Growth and Distribution: Stratification, Polarization, and Convergence Clubs, Discussion Paper 324, Centre for Economic Performance, LSE.
Quah, D. (2000): Cross-Country Growth Comparison: Theory to Empirics, Working Paper, Economics Department, LSE.
Ravallion, M, Chen, S. (1997): What Can New Survey Data Tell Us about Recent Changes in Distribution and Poverty?, World Bank Economic Review, Oxford University Press, vol. 11(2), pages 357-82, May.
Ravallion, M., Wodon, Q. (1997): Poor Areas or Only Poor People?, Policy Research Working Paper Series 1798, WB: Washington D.C.
Regional Science 40, pages 721-765.
Report No. 99/100, September.
Rodriguez-Pose, A. (1998): The Dynamics of Regional Growth in Europe. Social and Political Factors. Oxford: Clarendon Press.
Rodriguez-Pose, A. (2002): The European Union: Economy, Society and Polity**.** Oxford University Press, Oxford, UK.
Rodrik, D. (1995): The Dynamics of Political Support for Reforms in Economies of Transition. CEPR Discussion Paper, n. 1115, London, Centre for Economic Policy Research.
Rodrik, D. (2000): Institutions for High Quality Growth: What They Are and How to Acquire Them. *Studies in International Comparative Development*, 2000/3, pages 5-10.
Roland, G. (2000). Transition and Economics: Politics, Markets, and Firms. The MIT Press.
Romer, P.M. (1986): Increasing Returns and Long-Run Growth. *Journal of Political Economy*, 94, n. 5, pages 1002-1037.
Romer, P.M. (1994): The Origins of Endogenous Growth. *Journal of Economic Perspectives*, 8, pages 3-22.
Rosser, J. B. Jr., Rosser, M.V., Ahmed, E. (2000): Income Inequality and the Informal Economy in Transition Economies. *Journal of Comparative Economics* (March, 2000), pages 156-171.
Rostow, W. (1960): The Stages of Economic Growth: A non-Communist Manifesto, Cambridge, UK: Cambridge University Press.
Rozelle, S. (1996): Gradual Reform and Institutional Development: the Keys to Success of China's Rural Reforms. In: John McMillan and Barry Naughton (eds.), *Reforming Asian Socialism: the Growth of Market Institutions*. Ann Arbor: university of Michigan Press.
Rutkowski, J. (2007): Labour Markets in EU8+2: From the Shortage of Jobs to the Shortage of Skilled Workers. WB: Washington D.C.
Sachs, J., Woo, W.T. (1994): Structural Factors in the Economic Reforms of China, Eastern Europe and the Former Soviet Union. *Economic Policy*, 18, pages 101-145.
Sala- i- Martin, X. (1995): The Classical Approach to Convergence Analysis, CEPR, Discussion Paper, 1254.

Sapir, A. et al. (2003): An Agenda for a Growing Europe: Making the EU System Deliver, Report of an Independent High Level Group established at the initiative of the President of the European Commission (other members of the group: Philippe Aghion, Giuseppe Bertola, Martin Hellwig, Jean Pisani-Ferry, Dariusz Rosati, José Viñals and Helen Wallace), July 2003, Brussels.
Sen, A. (1992): Inequality reexamined. Oxford, 1992. 12.
Shleifer, A., Vishny, R. (1994): Politicians and Firms. *The Quarterly Journal of Economics*, vol. 109, n. 4 (Nov., 1994), pages 995-1025. Oxford University Press, UK.
Silverman, B.W. (1986): Density Estimation for Statistics and Data Analysis, Chapman and Hall.
Solow, R. (1956): A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, vol. 70, n. 1. (Feb., 1956), pages 65-94.
Sotte, F. (2012): La PAC dopo il 2013. Agriregionieuropa, 2011.
Stiglitz, J.E (1999): Whiter Reform? Ten Years of the Transition. Paper prepared for the Annual Bank Conference on Development Economics, Washington, D.C., April 28-30, 1999.
Stilianos, A., Stilianos, K. (2010): Convergence in Agriculture: Evidence from the Regions of an Enlarged EU. MPRA Paper 26011, University Library of Munich, Germany.
Svejnar, J. (1989): A Framework for the Economic Transformation of Czechoslovakia. *PlanEcon Report*, vol. V, n. 52, pages 1–18.
Svejnar, J. (1999): Labour Markets in the Transitional Central and Eastern Europe Economies. In: O. Ashenfelter and D. Card (eds.) Handbook of Labour Economics, vol. 3-4. North-Holland.
Swain, N. (1999): Rural development and social change in the post socialist central
Swinnen, J.F.M. (1999): Political Economy of Land Reform Choices in Central and Eastern Europe. *The Economics of Transition*, 7(''), pages 637-664.
Swinnen, J.F.M., Rozelle, S. (2006): From Marx and Mao to the Market: The Economics and Politics of Agricultural Transition, Oxford University Press, Oxford.
Swinnen, J.F.M. (2008) (Eds.): The Perfect Storm: The Political Economy of the Fischler Reforms of the Common Agricultural Policy. CEPS, Brussels.
Swinnen, J.F.M., Van Herck, K., Vranken, L. (2009): Agricultural Productivity in Transition Economies. *Choices*, 4th Quarter 2009, 24(4).
Szűcs, I., Széles, Z. (2004): Land Ownership and Property Relations in the EU Approaching Process in Hungary. *Studies in Agricultural Economics*, n. 100. AKI.
Terluin, I.J, Berjhout, P (2011): Exploring the Perspectives of a Mixed Case Study Approach for the Evaluation of the EU Rural Development Policy 2007-2013. Paper presented at the 122nd EAAE Seminar, Ancona, February 17-18, 2011.
Terluin, I.J., Roza, P. (2010): Evaluation Methods for Rural Policy. The Hague: LEI report 2010-037.
Transforming Economies, Greenwood Press.
UNECE (2005/2007): The Wye Group Handbook: Rural Households' Livelihood and Well-Being Statistics on Rural Development and Agricultural Household Income. United Nations Economic Commission for Europe, Geneva (for IWG-Agri).
Van den Berg, R.R. (2001): Nonfarm Employment and Poverty Alleviation of Rural
Viesti, G., Prota, F. (2004): Le Politiche Regionali dell'Unione Europea. *Studi e Ricerche*, Il Mulino, Bologna.
Vodopivec, Milan, 2004. A Simulation of an Income Contingent Tuition Scheme in a Transition Economy, IZA Discussion Papers 1247, Institute for the Study of Labour (IZA).
WB (1992). *Economies of the Former Soviet Union. An Input-Output approach to the 1987 National Accounts*. WB: Washington D.C.
WB (1992): Economies of the Former Soviet Union. An Input-Output Approach to the 1987 National Accounts. WB: Washington D.C.
WB (1997): *World Development Report*: From Plan to Market. WB: Washington D.C.
WB (2000). *Rural Development Indicators Handbook*, UNECE, Eurostat, FAO, OECD, World Bank.

WB (2002). *Report on Transition Countries*. WB: Washington D.C.
West and Fails Everywhere Else. New York, NY: Basic Books.
Williamson, J. (ed.) (1994): The political economy of policy reform. Washington, DC: Institute for International Economics.
Yin, R. K. (2009): Case Study Research: Design and Methods. Sage Publications, 2009, pages 219.
Zasada I. (2011): Multifunctional Peri-Urban Agriculture. A Review of Societal Demands and the Provision of Goods and Services by Farming. *Land Use Policy*, n. 28, pages 639– 648.

Important web sites:

DG Agri: http://ec.europa.eu/agriculture/index_en.htm
DG Employment, Social affairs & Inclusion: http://ec.europa.eu/social/home.jsp
DG Enlargement: http://ec.europa.eu/enlargement/index_en.htm
EUROSTAT: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
FADN/RICA: http://ec.europa.eu/agriculture/rica/
FAO (Statistics): http://www.fao.org/corp/statistics/en/
HCSO: http://www.ksh.hu/
ISTAT (Blue-Ets Project): http://www.blue-ets.istat.it/
OECD (Regional, rural and urban development):
http://www.oecd.org/topic/0,3699,en_2649_37429_1_1_1_1_37429,00.html
RuDi Project: http://www.rudi-europe.net/
SCARLED Project: http://scarled.eu/
UN (Trade): http://comtrade.un.org/db
WB (Agriculture and Rural Development): http://data.worldbank.org/topic/agriculture-and-rural-development
Wye Handbook 2007:
http://www.fao.org/fileadmin/templates/ess/pages/rural/index.htm

LIST OF TABLES

Table 1.1.1: Washington Consensus: reform policies 16
Table 1.1.2: Reform in selected economies in transition 19
Table 1.1.3: Consumers price level in Russia, 1993=100 23
Table 1.2.1: Unemployment dynamics in transition 28
Table 1.2.2: Structural change in employment 29
Table 1.3.1: Underground economy (UndEco) and Gini index in selected transition countries 33
Table. 1.5.1: GAO adjustments in transition 39
Table 1.5.2: Change in ALP in transition 40
Table 1.5.3: Growth of input use in agriculture 41
Table 2.4.1: Evolution of decoupled payments per farm in Hungary (EUR), 2004-2009 63
Table 2.4.2: Rate of decoupled payments on total support to farms in Hungary (EUR), 2004-2009 64
Table 2.4.3: Employment in agriculture 2008-2010 (% of the total) 65
Table 2.4.4: GVA produced by the agricultural sector (% of the total) 65
Table 2.4.5: Critical values for σ-convergence test (agricultural labour productivity) 66
Table 3.1.1: Direct payment granted per hectare, in EUR/ha (SAPS+CNDP) 70
Table 3.1.2: Number of beneficiaries and average amount, 2010 74
Table 3.3.1: EU Budget for commitments, 2007-2013 (in million EUR) 87
Table 3.4.1: EU Budget for commitments and payments, 2014-2020 (in million EUR) 91
Table 3.4.2: Peculiarities of the two CAP pillars in 2014-2020 93
Table 4.1.1: Commitments and payments of SAPARD programme 98
Table 4.1.2: Commitments and payments for ARDOP 2005-2007 99
Table 4.1.3: Distribution or EAFRD Funding between Axes for NMS and EU 15, 2007-2013 (%) 100
Table 4.2.1: Share of agriculture in the Hungarian economy, 1995-2002 103
Table 4.2.2: Land distribution according to property (000 hectares) 105
Table 4.2.3: Individually Used Farmland in CEEc (in % of the total) 105
Table 4.2.4: Land price by region and use in Hungary, 2009 106
Table 4.3.1: Contribution of agricultural and agri-food industry to the Hungarian economy 108
Table 4.3.2: Agri-food and beverages export and import in 2000-2007, million USD 109
Table 4.3.3: Percentage of change in agricultural production 111
Table 4.3.4: Production of cereals and oilseeds in million tonnes, 2005-2009 112
Table 4.3.5: Animal for slaughter and products in million tonnes, 2005-2009 113
Table 4.3.6: UAA and share in land area by farm size group 114

Table 4.3.7: Number of holding by farm size group 114
Table 5.1.1: Rural areas in the agricultural and Rural Development perspective 119
Table 5.1.2: OECD basic rural development indicators classified by themes 124
Table 3.1.3: Assessment of the main properties of evaluation methods 127
Table 5.3.1: List of variables and indicators 130
Table 5.4.1: Model summary 2003 137
Table 5.4.2: Standardized canonical discriminant function coefficient 137
Table 5.4.3: Classification results 138
Table 5.4.4: Model summary 2007 138
Table 5.4.5: Standardized canonical discriminant function coefficient 138
Table 5.4.6: Classification of results 139
Table 5.5.1: Variation 2007/2003 (%) for selected variables 141
Table 5.5.2: Coefficient of Variation for living conditions between the Hungarian counties (NUTS 3) 142

LIST OF FIGURES

Figure 1.1.1 Explaining the Socialist structure 17
Figure 1.2.1: Employment and output adjustment in East European Countries (CEEc) and Former Soviet Union (FSU) 24
Figure 1.2.2: Trend in real wages in the CEEc and in the FSU 26
Figure 2.2.1 (a): Unconditioned β-convergence 46
Figure 2.2.1 (b): Conditional β-convergence 47
Figure 2.4.1: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 1999 54
Figure 2.4.2: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 2003 54
Figure 2.4.3: Marginal Distribution of p.c. GDP (PPS) in NMS (NUTS 3) in 2008 55
Figure 2.4.4: Stochastic kernel of p.c. GDP (PPS) in NMS (NUTS 3) 56
Figure 2.4.5: Contours of p.c. GDP (PPS) in NMS (NUTS 3) 56
Figure 2.4.6: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 1997 57
Figure 2.4.7: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 2003 58
Figure 2.4.8: Marginal Distribution of p.c. GDP (PPS) in Hungary (NUTS 3) in 2008 59
Figure 2.4.9: Stochastic kernel of p.c. GDP (PPS) in Hungary (NUTS 3) 59
Figure 2.4.10: Contours of p.c. GDP (PPS) in Hungary (NUTS 3) 60
Figure 2.4.11: Marginal distribution of conditioned GDP in Hungary (NUTS 3) in 2004 61
Figure 2.4.12: Marginal distribution of conditioned GDP in Hungary (NUTS 3) in 2008 61
Figure 2.4.13: Stochastic kernel of p.c. GDP and conditioned in Hungary (NUTS 3) 62
Figure 2.4.14: Contours of conditioned GDP in Hungarian counties (NUTS 3) 62
Figure 2.4.15: Agricultural labour productivity in the Hungarian counties, 2000-2007 67
Figure 3.1.1: Direct payments and total operating subsidies as a percentage of agricultural income (avg. 2007-2009) 69
Figure 3.1.2: Average direct payments per beneficiary and per hectare in 2013 71
Figure 3.1.3: Distribution of direct payments*, potential eligible area**, utilized agricultural area and livestock units***, EU-27=100% 72
Figure 3.1.4: Distribution of direct payments*, potential eligible area**, utilized agricultural area and livestock units in EU-12***, EU-12=100% 73
Figure 3.2.1: EU development in agricultural income 77

Figure 3.2.2: Evolution of agricultural income as a % of average income in the economy 78
Figure 3.2.3: Income per worker by Member State, 2007 79
Figure 3.2.4: Income per worker by farm type, average 2004-2006 81
Figure 3.2.5: Share of direct payments in income by farm type, average 2006-2008 in EU-25 82
Figure 3.2.6: Income per worker by farm economic size (ESU) 82
Figure 3.3.1: Cumulative reduction in prices support between 1991 and 2009 85
Figure 3.3.2: Change in net production surplus (% of consumption) 85
Figure 3.3.3: Evolution of CAP expenditures in the reform path 86
Figure 3.4.1: Distribution of commitment appropriations in MFF 2014-2020 91
Figure 4.1.1: NHRDP budget 2007-2013 101
Figure 4.3.1: Regions of Hungary 107
Figure 4.3.2: Hungarian gross agricultural output, 2009 110
Figure 4.3.3: Yields of maize and wheat (tonnes/ha) 112
Figure 4.3.8: Index of agricultural income, 2005=100 115
Figure 5.2.1: Hungarian counties according to the OECD perspective 128
Figure 5.2.2: Hungarian counties according to the Adjusted Rurality Perspective 129
Figure 5.4.1: Hungarian rural counties, 2003 134
Figure 5.4.2: Hungarian rural counties, 2007 136