„Socio-Economic Assessment of the Danube Region: State of the Region, Challenges and Strategy Development"

Final Report Part I

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List of Abbreviations

AT	Austria
BA	Bosnia and Herzegovina
BG	Bulgaria
BW	Baden-Wuerttemberg
BY	Bavaria
CZ	Czech Republic
HR	Croatia
HU	Hungary
ME	Montenegro
MD	Moldova
RO	Romania
RS	Serbia
SK	Slovakia
SI	Slovenia
UA	Ukraine
MSA 1	Member States Area 1
MSA 2	Member States Area 2
MSA 3	Member States Area 3

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Key Messages

- The main challenge for the Danube Region is to improve cohesion and increase competitiveness through cooperation. The less developed economies need to catch up at a faster pace with the wealthier Danube countries than they have in the past.
- Capital formation is an important driver of catch-up. Therefore, investment ratios will have to remain highest in the countries with the lowest level of GDP per capita.
- A better investment climate would encourage the activities of domestic investors and also increase the region's attractiveness for inward FDI.
- Labor costs should only be raised according to the increase in labor productivity in order to maintain the region's international cost competitiveness. This is especially important for the countries of the Danube Region with low technological competitiveness.
- Speeding up economic growth will be the main driver of employment creation. In addition, reforms of labour market institutions and of the educational and training systems will be necessary.
- The Danube Region has the potential of becoming a more competitive economic zone by improving transport network connectivity, accessibility, and resource efficiency.
- Reducing transmission and distribution losses in the electricity grid and increasing the share of renewable energy may help to reduce energy import dependency and further diversify the energy mix.
- Although SMEs' managers in the Danube Region still evaluate access to finance as one of the most pressing problems, the availability of external financing has improved in the Danube Region in 2013 compared to the years 2009 and 2011. The efficient use of available resources (multinational, national and private) can spur investment and employment.
- The countries, regions, business organizations and clusters have developed intensive and diverse cooperation activities in the Danube

Region, yet so far largely without fully utilizing the potential provided by the EU Strategy for the Danube Region (EUSDR). There is a need to increase transparency and coordination, and to clarify the relationship between EUSDR initiatives and other programmes and initiatives at the EU level for Southeast Europe and the Eastern Neighbourhood.

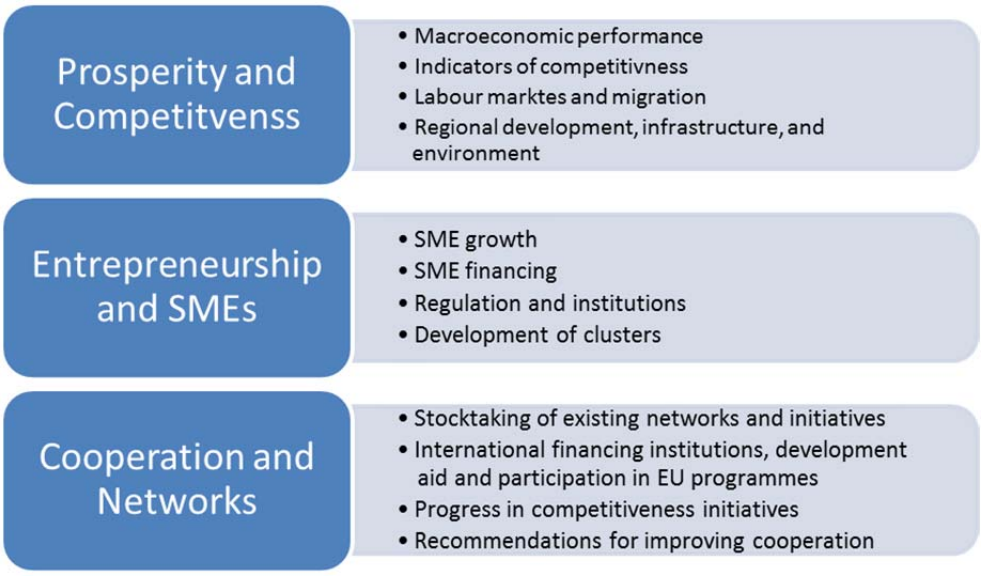
- Cooperation potential for firms and clusters exists all along the Danube based on already existing structures, but – mirroring economic development and institutional gaps – the participation in cooperation initiatives is very uneven. Especially organisations from less developed regions of South-East Europe, Moldova and Ukraine need better integration into the cooperation process of the EUSDR.

Executive Summary

In April 2011, the Council of the European Union adopted the **EU Strategy for the Danube Region (EUSDR)**. The Council Conclusion and the accompanying Action Plan defined a road map with concrete priorities for the Danube macro-region to achieve the aims of connecting the Danube Region, protecting the environment in the region, **generating prosperity** and **strengthening the Danube Region** through **institution building and cooperation**. The EUSDR is a political process that is based on an extensive consultation of stakeholders at different levels.

This State of the Region Report aims to support the consultation process by providing for the first time an assessment of the existing conditions in the region in terms of **prosperity and competitiveness from a broad socioeconomic perspective**. Furthermore, an assessment is provided in the report concerning the **quality of SME development and of its network activities**.

Figure 1: The pillars to assess the State of the Danube Region Report



In this report we identify the **opportunities, needs and challenges** of the Danube Region based on an indicator-based analysis, benchmarking the Danube Region with successful regions and best practice guidelines. By applying a

SWOT analysis we identify **potential fields of cooperation** to enhance prosperity and competitiveness of the Danube Region. Finally, we provide a set of **preliminary recommendations** that can stimulate discussions among a wider group of stakeholders and that can be the basis for planning further actions.

The results presented in this report build on a concept that defines competitiveness as the set of **factors, institutions and policies** that affect the level of macroeconomic and microeconomic productivity which enables a country to achieve a high and sustainable path of income and prosperity. It thus builds on a broad understanding of competitiveness by including the relevant factors that make a country or region attractive for doing business and a place for generating job and employment opportunities.

The **Danube Region** includes the Federal States Baden-Wuerttemberg and Bavaria of Germany, Austria, Slovakia, the Czech Republic, Hungary, Slovenia, Romania, Bulgaria and Croatia Serbia, Bosnia and Herzegovina, Montenegro, the Republic of Moldova and some border regions of Ukraine. The Danube Region exhibits very wide disparities. It covers some of the most successful but also some of the poorest regions in the EU. In order to take this heterogeneity into account, we additionally define and assess the following sub-regions: **Member States Area 1** (Bavaria, Baden-Wuerttemberg and Austria), **Member States Area 2** (Hungary, the Czech Republic, Slovakia and Slovenia), **Member States Area 3** (Romania, Bulgaria and Croatia), the **Accession Countries** (Serbia, Bosnia and Herzegovina and Montenegro) and the **Neighbouring Countries** Ukraine and Moldova.

Macroeconomic Performance and Competitiveness

The Danube Region's **GDP per capita**, an indicator which is commonly used to measure welfare, reached around two-thirds (65.3%) of the level of the **EU-27** member states and 58.7% of the level of the **OECD** countries in 2011. The relative backwardness of the Danube Region in terms of average GDP per capita is due to the less developed country groups. Whereas GDP per capita in Member States Area 1 was more than two times higher than the regional average, it was 80% of the average in Member States Area 3, 50% in the Accession Countries and less than 40% in the Neighbourhood. These differences are even higher at the level of NUTS2 regions. **The development gap within the Danube Region is a major challenge for defining a common development path.**

At the same time, it provides opportunities for specialization and cooperation resulting in stronger development for all participants.

Even though there is a considerable gap compared to the EU-27 and the OECD, for the past few years **economic growth has been much higher in the Danube Region** than in the benchmark regions. Between 2005 and 2011, average annual economic growth in the Danube Region reached 4.6% in real terms, whereas EU-27 countries grew only by 0.8% and OECD countries by 0.7%. As in Europe as a whole, the long-run upward trend of GDP was temporarily interrupted by the 2009 economic crisis, but growth was resumed in the Danube Region in 2013 while the EU-27 was close to stagnation.

The **public debt to GDP ratio** of the Danube Region was 52.4% in 2011. According to this indicator that is also used as a European convergence criterion, the Danube countries attain a lower level of public debt than the EU-27 group (85.3%). For the Danube Region, this is a positive result because it implies a lower interest and repayment burden. And in addition, if one neglects possible borrowing restrictions and other factors there will be more scope for financing future public expenditure programmes (e.g. in infrastructure) than in the mentioned benchmark region.

The Danube Region has a large labour force potential and still a **rather low labour productivity**. GDP per person employed was 34,800 US$ (2005, PPP) in 2011. This means that labour productivity was 40.2% and 46.3% lower than in the EU-27 and in the OECD, respectively. The question is whether this productivity gap also implies an above average level of **unit labour cost**. In 2011, the ratio between labour costs and labour productivity of the Danube Region was 0.49 and thus lower than in the EU-27 countries (0.52). This suggests that the Danube Region has sufficiently low labour costs to compensate its poor productivity. This could be an opportunity of faster economic growth, especially for the Member States Area 3, as this country group exhibits the lowest unit labour costs within the Danube Region.

In terms of **sectoral composition**, the share of value added in the service sector exceeds the respective shares in the other two economic sectors the Danube Region, just like in the benchmark regions. However, contributing 33.4% of GDP in the Danube Region, the industrial sector (including construction) is much more important than in the EU-27 (25.2%) or in the OECD (24.6%). Eco-

nomic development and competitiveness can thus rely on a strong industrial base. The share of the agricultural sector in the Danube Region as a whole accounts for only 2.3% of value added. In contrast, in Member States Area 3, the share of agriculture in value added accounts for 6.2% of GDP. There are agricultural regions especially in the East of the Danube Region which have specific development needs.

A major support to economic growth in the Danube Region is the region's investment propensity which is higher than in the peer countries. Between 2005 and 2010, the Danube Region's **gross investments** accounted for over 22% of GDP. This share is 2 percentage points higher than in the EU-27 (20.4%) or the OECD (20.0%). Among the Danube subgroups, Member States Area 2 and Member States Area 3 reached investment ratios well above average (with 25.1% and 27.7%, respectively). High capital formation may generate expansion of production capacity and more economic growth.

The inflow of **foreign direct investment (FDI)** and **EU structural funds** have been major sources of investment financing in the Member States Areas 2 and 3. Foreign investors have taken over companies and have also established new capacities. As a consequence, in 2011 the FDI stock reached 34% of the Region's GDP (inward FDI ratio). Also the outward FDI stock has caught up mainly due to the activity of Member States Area 1. Both inward and outward FDI ratios are below the respective ratios of the EU-27 group meaning that **in terms of Foreign Direct Investment the Danube Region is still less intensively connected with the world economy** than the EU-27. An outstanding feature of the Danube Region is its intensive inter-connectedness within the region as Member States Area 1 ranks first among the home countries of investors in the rest of the Danube Region. Also Member States Area 2 companies have started investing both within the countries of this subregion and in other Danube Region regions. Further supply chain relationships can be a way to support further economic growth in all parts of the region.

The degree of integration in international trade can be expressed in **trade intensity**. Capturing the sum of export and import values relative to GDP, the trade intensity of the Danube Region amounted to 1.01 in 2011. The respective numbers for the EU-27 and the OECD were 0.87 and 0.58 respectively. Hence, **with respect to trade the Danube Region is more internationally inte-**

grated than the benchmark regions. As a sign of internal integration, a large part of this trade takes place among the countries of the Danube Region. Overall, the Danube Region has run an **export surplus** for the past few years. This is partly due to depressed demand in the wake of austerity policies in several countries. It can be expected that imports will take off when the region switches to higher economic growth rates.

Beyond macro-economic conditions, the **institutional environment** for companies is an important precondition for growth and competitiveness. Unfortunately, **the Danube Region has become less attractive for investors over the last few years** – at least this is what the "Global Competitiveness Report 2013", a survey that interviewed 13,000 business leaders in 148 countries indicates. The Danube Region has fallen back in the global ranking with regard to the indicators 'Burden of government regulation', 'Protection of property rights', 'Flexibility of wage determination' and 'Trade barriers'. It is up to the region's governments to improve the conditions for doing business. Business organization may give the necessary impetus.

The indicators for market entry show **strong improvements in administrative obstacles to starting a business**. In 2003, the region was significantly lagging behind the OECD, EU-27 and EU-15 in all measures of regulatory burden. During the past decade, both the time and the cost of business start-up have been cut roughly by two-thirds. Minimum capital requirements have, on average, been cut by one-sixth, and several countries decided to abolish them completely. Still, the 2012 objectives set by the EC were not met by most countries. Thus, there is potential and need for further progress.

Regarding economic freedom, a ranking as "moderately free" predominates in the Danube Region. Over time, there is a divergence between EU members and Accession Countries, which have made progress during the last 4 years, and Neighbouring Countries, in which economic freedom has decreased and which are rated as "mostly unfree".

Corruption is a serious issue for at least a part of the region. This has long been recognised and addressed by policymakers, but national policies have proved to be insufficient. Recently, the issue is also systematically addressed at a supranational level. Although much effort has been taken, there is no clear evidence of an improvement yet.

Labour market conditions and regional development

From the labour market and migration perspective the major challenge are the **large differences in the labour market performance** across the Danube Region. The gap is particularly wide between the most developed Member States Area 1 and the least developed countries in the Accession Countries Area as well as in the Neighbourhood Countries.

Labour market participation rates in the Danube Region have been traditionally lower (at about 67%) than in the EU-27 and EU-15 or OECD countries (over 70%) and the same refers to employment rates. The gap between participation rates of the Danube Region and the three groups of benchmark countries remained almost unchanged in the period 2007-2012, ranging between 5 and 7 percentage points below the values for the benchmark regions.

The employment rates of young people (15-24 years) also show remarkable variations. Youth employment rates have been the highest in the OECD area and lowest in the Danube Region. In the period 2008-2012 **youth employment rates decreased** in all regions. Within the Danube Region, youth employment rates fell most significantly in the Accession Countries (by 7 percentage points) and in the Member States Area 2 (by 4.8 pp).

The employment rate among highly educated persons (with completed tertiary education) is about 7-8 percentage points lower in the Danube Region than in the EU-15 or in the EU-27. Hence, compared with the EU-15 and EU-27 economies, the Danube Region has a **very strong representation of the medium educated skill groups**. With the exception of the Member States Area 1 the share of the medium educated in total employment exceeds the 60% mark and even 70% in the Member states Area 2.

Given the different levels of development of the Danube Region countries' labour market, **tailor-made responses are needed**, with policies that may vary considerably from one country to another. Policies in the less developed countries may focus on the adjustment of vocational training to the needs of the economy and make vocational training in general more attractive for the young; setting up dual training systems may help to combat high youth unemployment enhancing and institutionalising cooperation between the poor and best performers with respect to labour market initiatives, e.g. through the

exchange of best practises; training people in administration/public employment services; strengthen social partnership.

Splitting each country into regions immediately reveals that the economic processes, which seem to be clear at the country level, are in fact the sum of quite heterogeneous patterns at the regional level. Although each of the 65 NUTs regions in the Danube Region is in one way or another special, the regions can be grouped according to **development level** and again split in groups according to their **population density** thus resulting in groups of urban, intermediate and rural regions. It turn out that the more developed country groups have not only higher per capita GDP in most of their regions than the rest, but are also more urbanized, thus able to utilize agglomeration advantages. Less developed and less urbanized areas have larger agricultural population, higher unemployment and lower educational attainment than the more urbanized regions. Development policies focussing on the special needs of less urbanized areas may help them to catch up economically.

Infrastructure, Energy and the Environment

The assessment of **transportation infrastructure** indicators shows that in most countries of the Danube Region the **railroad and port sectors** are underperforming in relation to other infrastructure sectors, in particular the electricity sector. In general, there is a gap in infrastructure quality from the western to the eastern countries of the Danube Region. This is true for roads, railroads, ports and airports, with only a few exceptions.

The quality of the **Danube River shipping and its ports** needs vast improvements. In principle, waterborne transport on the Danube has the potential to manage the growing transport volumes that are expected in the region. For this purpose, however, the river needs to be cleaned up and deepened, ports reconstructed and developed into multi-modal hubs.

As regards to the **energy sector**, all Danube countries are relatively well developed. However, the eastern part of the Danube Region is again found to be performing less well. The Danube Region is energy-import dependent since it does not have many natural energy resources. Interconnection of the electricity grids as well as gas transport lines can improve the security and efficiency of supply all through the Danube Region.

Electricity prices, including taxes and fees, are relatively high in the western parts and decline towards the east. **Electricity transmission and distribution** losses draw the inverse picture of electricity prices. Transmission and distribution losses are high where electricity prices are low. Renewable electricity is almost exclusively produced from **hydro power** in the former Yugoslavian and Soviet countries of the Danube Region. Most other Danube countries have significant shares of **solar and wind energy**. **Energy use, electricity use, and CO2 emissions per capita** are highest in the western parts of the Danube Region. Nonetheless, the western countries are the most CO2 efficient, i.e. they have the lowest CO2 emissions per PPP $ of GDP. There is no universal trend towards the east: some countries reach the EU-27 and/or OECD benchmarks, while others fail them considerably. These uneven quality indicators suggest that there is wide room for cooperation and trans-border projects to improve energy efficiency and environmental conditions.

Entrepreneurship and SMEs

The assessment of **entrepreneurship and SMEs** reveals that the number of **start-ups** in relation to the working age population in the EU countries of the Danube Region[1] resembled those in the EU-15 countries in the years 2006 and 2007, and significantly exceeded them in the years 2009 and 2010. Start-up rates (number of start-up in relation to the stock of firms) in the period 2008-2010 were similar to those in the EU-15 countries. Around 18 percent of all start-ups were established in **research and knowledge intensive sectors** between 2004 and 2010, similar to other EU countries. However, the proportion of start-ups in the research and knowledge intensive sectors in the Danube Region seems to be a bit lower than in the EU-15 and the EU-27.

Closure rates (number of firm closures in relation to the stock of firms) were similar to those for the EU-15 countries both for all closures and for closures in the research and knowledge intensive sectors in the period 2008-2010. The **stock of active firms** in the Danube Region as a whole has not changed at all in the considered time period. The closure rate has been as high as the start-up

[1] No data on firm dynamics for the non-EU countries of the Danube region are available.

rate. This holds both for the research and knowledge intensive sectors and for the other sectors. There are **large differences** detectable between the different sub-regions of the Danube Region with respect to **firm dynamics**. While the stock of firms in the countries of Member States Area 1 is in a kind of equilibrium, noticeable turbulences in the stock of firms can be observed for the Member States area 2 and 3.

Access to finance is crucial and can be an issue at all stages of the development cycle of SMEs. In contrast to large businesses, which have access to capital markets, the vast majority of SMEs does not have such access and is more reliant on other sources such as bank lending or internal funds. The current economic environment with tightened credit conditions has brought SMEs' financial needs into the focus of European policy. A wide range of financial support institutions and instruments have been developed to support SMEs at the different stages of their life. Managers across the Danube Region rated "making existing public measures easier to obtain" (for example through the reduction of administrative burdens) and "tax incentives" as the two most important measures, when asked to rate the importance of a number of different mechanisms to help their company's financing in the future.

Financial support for SME has been provided at **European level** but also at **national and regional level**. At the European level initiatives were launched to promote increased access to finance through the financial instruments of the **Competitiveness and Innovation Framework Programme**, financial support available under the **Structural Funds** and the schemes supported by the **European Investment Bank (EIB)** and the European **Investment Fund**.

In the Danube Region, the **EIB is the most active multilateral financing institution**. Its various programmes and initiatives have effectively contributed to the easing of SMEs' financing conditions. Through their diversity, they can cover a wide spectrum of financing instruments demanded by SMEs. Once the European debt crisis will be left behind, the focus of the initiatives is likely to shift from emergency support in illiquid markets to structural support and the implementation of necessary reforms to foster development of the financial infrastructure available to SMEs.

Although the access to finance is seen as a crucial problem, managers in the Danube Region state in surveys that it has improved in 2013 compared to

2009 and 2011. Generally speaking, **bank loans are the main source of external SME finance** and very often they are the only available corporate financing option for SME in contrast to large firms which have many further external sources of finance. Significantly **less SME in the Danube Region used internal funds and more SME used bank loans as well as grants or subsidised bank loans** in 2013 compared to 2009. The increase of the usage of bank loans and grants in the E-28 in 2013 was much weaker. The development in the Danube Region provides additional evidence for the improvement of the access to finance as excessive reliance on internal funds is a sign of potentially inefficient financial intermediation or a limited access of firms to capital. Although SMEs' financing constraints such as access to public finance and willingness of banks to provide a loan are still among the major challenges facing SMEs' managers, these indicators showed **gradual improvement** since the worst crisis year 2009.

Clustering and cluster development

The importance of cluster activities is growing in the Danube Region as more and more countries have adopted active cluster development policies and inter-cluster cooperation has started to move up on the economic agenda at regional level. Information on existing cluster organizations is not generally available. Clusters are defined as geographically co-located firms and other institutions engaged in economic activities in a set of related industries, connected through externalities and other types of linkages. The fact that the companies are clustered together in one region and that the on-going exchanges among them foster good communication and mutual trust produces advantages in terms of production efficiency and flexibility in drawing up competitive strategies.

The report provides first a quantitative benchmarking of economic clusters based on industry sector, regional classification, size, specialization and focus of clusters and economic data, such as number of employees and of enterprises, based on factual data from the European Cluster Observatory platform. A number of 278 clusters that pass a relevance threshold were identified in the 41 industry sectors that were analysed country by country within the Danube Region. Germany is leading with 63 clusters identified, out of which 18 of top ranking.

Next, the report is providing both a quantitative and a qualitative identification of potential sectors of cross-cluster cooperation within the Danube Region. Two leading sectors can be identified in terms of overall employment at the region level - **automotive** and **metal manufacturing.** In addition, there are four runner-ups - **production technology, construction, processed food** and **transportation and logistics**. There are also clusters in niche sectors such as **biotech**, **sporting, recreational and children's goods**, **leather products**, **lightning and electrical equipment**, **oil and gas** that may prove key to competitive growth and regional enhancement.

Sectoral cluster distribution is uneven across the region, as more advance sectors, such as production technology, are clustering in more developed countries, and other sectors, such as processed food, are concentrated in less developed or agriculture-related countries.

The qualitative perspective taps on survey results on sectors and specialisations of cluster initiatives carried out within the Working Group for Cluster Excellence in PA 8 of the EUSDR. It suggests that **automotive, ICT, wood processing** and **food and textiles** as the most frequent common choices as sectors for cluster cooperation across the region. **ICT** and **renewable energy** are also ranking high in the survey, as these sectors reflect key technologies of the future, that every country and investor in the Danube Region should consider. Other sectors selected for potential cluster cooperation by survey respondents are **environmental technology, health care, micro-nano technology, aerospace** or **creative Industries**. Clusters have recently or will soon become widespread in most of these fields as a response to technological challenges. However, not all such new developments have a critical mass or sustainable development perspective without public support.

From a policy perspective, the findings of the report suggest that only excellence-based cluster organisations are key to successful cross-cluster cooperation and that the public push needs to by reciprocated by a market/business pull, with enough traction to create sustainability.

In terms of the readiness of cluster organisation to develop clusters and cross-cluster cooperation, a case study on Romania leads to the conclusion that information on clusters and on cluster organisation should be crosschecked and enriched to ensure the proper design of cluster development and cooperation

initiatives and for evidence-based policy. Policy evaluation based on good data would be key to assess success. The creation of National Cluster Associations in all countries of the Danube Region is necessary as a unique contact point of information and reporting, while differentiating between robust/mature cluster and emergent clusters can be useful in terms of cluster-cooperation goals and agenda within the Danube Region.

Cooperation and Cooperation Potential in the Danube Region

The report provides an overview of about 30 existing organisations and networks related to economic cooperation in the Danube Region and offers conclusions and recommendations for future institutional cooperation.

Business and cluster networks in the Danube Region have emerged only recently while there is a long tradition to cooperate in the framework of EU programmes and the Southeast European cooperation process. **Cluster organisations** are first of all active to improve the capacities of clusters and their international networking. Among the business organizations the **chambers of commerce** and industry support start-up businesses, develop cross-border cooperation of businesses facilitate trade.

The targets of **cooperation to increase economic competitiveness** in the EUSDR are set in the Action Plan for the Priority Area 8. Projects are to be developed by cluster and business organisation. The Priority Area Coordinators together with the Steering Group established seven thematic Working Groups (WGs). Two of the working groups initiate the cooperation of clusters and of business networks respectively.

The WG Cluster of Excellence aims "to foster cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of competence in the Danube Region." In the field of **cluster cooperation TGM Upper Austria is the main initiator**. DanuClus aims to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020.

The **Danube Chambers of Commerce Association DCCA** has been the driving force to create the PA8 Working Group “Business Organisations”. This aims "to improve business support to strengthen the capacities of SMEs for

cooperation and trade". DCCA is an association of 20 regional and municipal chambers of commerce along the river Danube. There is no member from the more remote provinces of the Danube Region countries.

The new **transnational ETC programme DANUBE 2014-2020** set up for the Danube Region provides an operational programme as another instrument to implement the goals of the EUSDR. Besides contributing to the Strategy's thematic goals by realising relevant cooperation projects, the programme might also support the institutional cooperation of stakeholders and institutions of the Danube Strategy.

The **participation in cooperation initiatives is very uneven** in the Danube Region. German, Austrian and Hungarian organisations are the most active, those from Croatia, Serbia, Romania and Bulgaria are less so while other countries hardly show up. This has to do with variations concerning cooperation culture, financing opportunities and public governance, generally mirroring economic development and institutional gaps between the Danube Region countries and regions.

The analysis of the current cooperation networks and the results of a small questionnaire suggest that **clarification is needed** as to the role of various initiatives and programmes in the framework of the EUSDR in relation to other similar initiatives and programmes of the European Commission, Southeast Europe and the Eastern Neighbourhood. Financing opportunities for EUSDR activities must be clear for all (potential) participants in cooperation projects.

A further need is to **include the less developed regions** into the cooperation process. Organisations from less developed regions of South-East Europe and especially from Moldova and Ukraine need to be invited and integrated into the cooperation process of the EUSDR. These have poorer institutional, organisational and financial capacities than organisations in more developed countries. There are two ways ahead: (1) to enlarge existing networks and initiatives to the less developed regions; (2) to support initiatives in less developed regions to set up networks where they have leading position.

At the same time with broadening, **cooperation should be also more professional and deeper** in order to foster the development of world-class

clusters in line with the EU innovation strategy. A cross-sectoral approach for cluster projects is the new trend to foster innovation, which also allows for a transfer of knowledge to more traditional industries and for developing a smart specialisation strategy that transcends national borders.

1 Introduction

The EUSDR is the second EU macro-regional strategy following the EU Strategy for the Baltic Sea Region. The latter has been assisted by annual State-of-the-Region Reports which track various indicators of competitiveness, describe and evaluate collaboration activities across the Baltic Sea Region, cover entrepreneurship in the region and present the progress made in achieving the aims of the EU strategy. The analytical framework of these comprehensive reports, adapted to the specific features of the Danube Region, serves as a guideline for this study.

A brief characterization of the Danube Region

The socio-economic situation in the Danube Region is not only determined by the fact that people and countries share the same river, but also by historical, economic, political, and cultural interdependencies. The Danube connects and to a large extent defines regions of Central Europe and the Balkans. It has also been the scene of cycles of integrations and disintegrations in the recent history as well as in the more distant past. The legacy of those cycles and conflicts is manifested in widely different levels of development between the north-western and south-eastern parts of the Danube Region. The current level of integration and comprehensive interdependence of the region as a whole is quite unprecedented. This opens up prospects for sustainable development and faster convergence based on a closer cooperation and well-designed regional policies. This report aims at providing a pool of knowledge and insights for setting and attaining viable policy goals for increasing competitiveness in and of the region.

The Danube Region is characterized by wide differences in a range of socio-economic indicators such as economic development and income levels, labour market situation, foreign trade openness and specialisation. Economic and income gaps have even widened during the recent crisis and the labour market situation deteriorated.

Another distinct feature of the region is its relatively high (yet again varying) degree of trade integration: the shares of intra-regional exports in total ranges from 12%-13% in Germany and Ukraine to more than 50% in Hungary, Slove-

nia, Croatia and Bosnia and Hercegovina. In most Danube Region countries, the share of Germany in exports is overwhelming. On the other hand, Bulgaria, Romania, Serbia, Bosnia and Herzegovina, Montenegro as well as Ukraine and Moldova display divergent trade specialization patterns which reflect either their less advanced transition, legacies of the past and less pronounced geographic and economic proximity to the region (Ukraine).

These and other socio-economic characteristics and features of the Danube countries pose a number of challenges to the formulation of a coherent regional development strategy. At the same time, the regional economic and cultural diversity offers many opportunities which may be exploited for fostering regional development and competitiveness. A careful analysis of all these features, the identification of existing regional challenges and potential development strategies, as well as the recommendation of appropriate policies which would foster sustainable development and competitiveness of the Danube Region represents the ultimate task of the report.

Country composition of the Danube Region

The Danube Region largely consists of member states of the European Union most of which are former communist countries which joined during the last ten years. Further countries in South-East Europe are on the way to access the EU while those in the Eastern Neighbourhood also strive for closer institutional links.

The EUSDR encompasses the following countries and regions: Germany (Baden-Wuerttemberg and Bavaria), Austria, the Slovak Republic, the Czech Republic, Hungary, Slovenia, Romania, Bulgaria and (since July 2013) Croatia within the EU, and Serbia, Bosnia and Herzegovina, Montenegro, the Republic of Moldova and Ukraine.

This report compares the Danube Region with other regional aggregates, namely the OECD and the EU-27, in order to assess the Danube Region's competiveness and benchmark its economic performance.

Since the Danube Region exhibits wide disparities with respect to most indicators, we divide the Danube Strategy Region countries into five subgroups, primary taking into account the chronology of the EU integration process as well as the current economic performance.

The *Member State Area 1* consists of Bavaria, Baden-Wuerttemberg and Austria. Bavaria and Baden-Wuerttemberg are among the most powerful economic regions of Germany, founding members of the European Economic Community (EEG), while Austria only joined in 1995.

The *Member State Area 2* is made up of Hungary, the Czech Republic, the Slovak Republic and Slovenia. All these countries became members of the EU in 2004.

Member State Area 3 contains Romania, Bulgaria and Croatia. Whereas Romania and Bulgaria joined in 2007, Croatia is the most recent member of the EU, since it only joined in July 2013.

The group of *Accession Countries* comprises Serbia, Bosnia and Herzegovina, as well as Montenegro. The status of a candidate for accession has been given to Montenegro in 2010 and to Serbia in 2012, while Bosnia and Herzegovina remains a potential candidate for accession.

The group of *Neighbouring Countries* consists of Ukraine and Moldova. The term “Neighbouring Countries” relates to the European Neighbourhood Policy.

2 Competitiveness of the Danube Region: Potentials, Needs, Challenges, and Preliminary Recommendations

2.1 Macroeconomic Performance and Competitiveness

Potential Opportunities: Even though the Danube Region's GDP per capita is still much lower than in the benchmark regions EU-27 and OECD, this can also be seen as an opportunity for these countries, as with a lower initial level, it is easier to achieve growth rates above average.

As the Danube Region's labour costs are sufficiently low to compensate its still comparatively low labour productivity, the resulting unit labour costs currently give the region a small competitive edge internationally. This is one prerequisite among others for an export-driven economic growth.

Compared to the EU-27, the Danube Region's public debt to GDP ratio is relatively low. If one neglects possible borrowing restrictions and other factors the Danube Region will have a higher fiscal financing capacity and therefore can devote more public expenditures to growth generating projects, e.g. for infrastructure. This holds at least for those Danube countries with the highest need for action.

Needs: To achieve a higher GDP per capita, the Danube Region needs a higher labour productivity, which can be reached by the following: improving labour force qualifications, enhancing technological performance, and above all, enlarging physical capital endowment. The latter, however, requires that the necessary investments are undertaken. In the past few years the Danube Region's gross investments relative to GDP has been higher than in the benchmark regions. This investment path has to continue in the future. Only then the Danube Region will reach a higher physical capital stock, which will lead to higher labour productivity and in turn to higher GDP per capita.

High investment activity requires a good investment climate. However, according to the 'Global Competitiveness Report 2013', the Danube Region countries have become less investor friendly and less competitive, as they decreased in rank with regard to several indicators. Specifically, they lost ground in the areas 'Burden of government regulation', 'Protection of proper-

ty rights', 'Flexibility of wage determination' and 'Trade barriers'. Therefore, the Danube Region has to work on these issues.

A better investment climate would not only increase domestic investments but also attract more inward Foreign Direct Investments of private investors from abroad. In addition, better economic frame conditions in the Danube Region set the ground for support from international institutions such as the EU or the World Bank, which again facilitates physical capital formation.

Challenges: The main challenge for the Danube Region is to raise GDP per capita, an indicator which is commonly used to measure welfare. In 2011, the Danube Region's GDP per capita reached 18,100 US$ (2005, PPP). This amounts to only 65.3% of the EU-27 and 58.7% of the OECD level. Among the different EU Member States subgroups within the Danube Region, the problem only applies to the M2 group (Hungary, Czech Republic, Slovakia, and Slovenia) and especially the M3 group (Bulgaria, Romania, Croatia), where average GDP per capita adds up to only 21,500 US$ and 14,000 US$, respectively. Therefore, one challenge for these countries is to catch up faster than they did in the past years.

One important measure to increase GDP per capita is to raise labour productivity, which, in 2011, was only 40,400 US$ (2005, PPP) in the Danube Region, well below the EU-27 (58,200 US$) and the OECD (64,800 US$). Again, the M2 group and, in particular, the M3 group are in need of action, as their labour productivity reached only 48,000 US$ and 33,300 US$, respectively. For these countries it will be a challenge to achieve a faster catch-up path than in the past years.

Preliminary recommendations and suggestions for further action: Unions and management should aspire that wages only rise according to the increase in labour productivity in order to avoid increasing unit labour costs, as they are a main indicator for the cost competitiveness of an economy. This is especially important in countries which exhibit a low technological competitiveness.

Especially in the M2 and M3 countries within the Danube Region, political players should focus on the following aspects:

- Through educational and technology policy the respective states can contribute to a better qualified labour force and an improved

technological capacity. In the Danube Regions, this would lead to an increase in labour productivity and competitiveness, which in turn would favour a higher GDP per capita.

- Countries should dedicate a sufficient share of their total expenditures to public investments, especially in infrastructure projects, as they increase firms' productivity and lower their costs.
- However, a state-supported increase in physical capital formation does not necessarily require higher public expenditures. Particularly, governments can enhance the investment climate by improving the economic conditions for firms and investors. More specifically, the Danube Region should work on the areas 'Burden of government regulation', 'Protection of property rights', 'Flexibility of wage determination' and 'Trade barriers', as its ranking decreased with regard to these indicators.

2.2 Labour market and migration

Potential opportunities: Lower overall and youth unemployment rates in the Member States Area 1 than the other country groups of the Danube Region are partly the result of specific policies which could be adapted in regions with high unemployment. One of the major factors contributing to favourable labour market position of the young is the dual apprenticeship system securing a smooth transition from school to work for most young people.

In the Member States Area 3, the Accession and the Neighbourhood Countries the high share of agricultural employment combined with low wage levels allows for a specialisation in labour intensive production (e.g. environmental friendly production of vegetables etc). Most of the countries have areas with good soil quality and climatic conditions which are promising in terms of high-quality farm output, but sizeable investment in agriculture as well as in upstream and downstream sectors and infrastructure is needed.

Needs: To stimulate economic growth and consequently generate employment, the less developed Danube Region countries are first of all in need of investments and of a favourable business environment. There is also a need to reform the existing vocational and educational training (VET) systems in the less developed Danube Region countries in order to meet the requirements of the labour market,

i.e. in addressing the problem of skill mismatch. In addition it will be needed to strengthen labour market institutions such as wage setting mechanisms, employment protection legislation and active labour market policies, etc. Also modernising public employment services and expanding their instruments will be needed. In this respect transnational cooperation, e.g. in sharing experiences, acceding new approaches and learning new skills, can help. Last but not least it needs the political will to give employment creation highest priority.

Challenges: From the labour market and migration perspective large differences in the labour market performance across the Danube Region countries represent the major challenge. The gap is particularly wide between the most developed Member States Area 1 and the least developed countries in the Accession Countries Area as well as in the Neighbourhood Countries. In most of the less developed countries activity rates (particularly of females) are lower than in the prospering regions, agriculture is still an important employer, while the services sector (generally considered as the generator of future employment) is underdeveloped in many of these countries. Unemployment rates are very high by European standards, particularly among the young population and informal sector employment is pretty large and widespread. Vocational education and training systems in the less developed countries are inadequate in terms of curricula and skills provided and the capacities and effectiveness of public employment services are limited. Less developed Danube Region countries have been traditionally migrant sending countries and remittances are an important source of their income. By contrast, Austria and particularly Germany are among the most favoured destination countries in the EU for potential migrants from the Accession and neighbourhood countries; the Czech Republic is a receiving country of migrant labour from Ukraine. Given the poor economic growth prospects, gaps between the Danube Region countries with respect to activity and unemployment rates are likely to persist and consequently poverty will be on the rise in the less developed regions. Thus, the outflow of (young and highly educated) workers to the more prosperous countries will continue.

Preliminary recommendations and suggestions for further action:

- Given the different levels of development of the Danube Region countries' labour market, tailor-made responses are needed, with policies that may vary considerably from one country to another.

- Considering high and unprecedented youth unemployment in some of the less developed Danube Region countries, it would be conducive supporting them in setting up dual training systems of their own. Representatives of the social partners e.g. from Austria and Germany may also help to develop institutional settings and a legislative basis for the involvement of all social partners in the decisions on vocational education and training, but also in establishing efficient public employment services to ensure successful work placements.
- Enhancing/institutionalising cooperation between the poor and best performers with respect to labour market initiatives, e.g. through the exchange of best practises and training of people in administration.
- Gradual lifting of labour market restrictions, e.g. in the Accession Countries[2] and creation of conditions for return migration.

2.3 Regional Development

Potential opportunities: From a regional perspective, potential opportunities for economic development, especially those that can be strengthened by transnational or interregional cooperation, are likely to be a) heavily localised and b) confined to specific areas in the less developed countries in the Danube Region. Given the large differences in terms of economic development across the regions in the countries, opportunities are best for those regions in the less developed countries that already have established at least a nucleus of economic, especially industrial, activity. Strengthening the linkages of such regions to the highly developed and highly industrialised regions in Member States Area 1 may generate mutual advantages, in terms of increasing the potential market, inclusion in the production chain, thus generating technological spillovers and more efficient or technologically advanced production processes.

By contrast, finding opportunities for the heavily agricultural regions is much more difficult. One way to bring some development to the agricultural regions

[2] See also, SEE 2020 Strategy, Jobs and Prosperity in an European Perspective, p. 29

in Member States Ares 3 and the Accession Countries is by raising the status of agriculture itself. Some form of knowledge exchange, especially with Austrian agricultural organisations (as Austrian agriculture tends to be at the smaller scale as well), might results in some new ideas on how to modernise and organise existing agricultural structures in the less developed countries, especially also with respect to finding solutions for financing the investments needed in this respect.

Needs: The most important need that the less developed countries and regions in the Danube Region have is capital accumulation and investment, as they are the main ingredients to build up economic core areas (around smaller or bigger cities) that are the backbone of any local economy.

The question however is, in how far transnational and interregional cooperation projects can help in this respect. Establishing links between more and less the developed countries and regions, both in the public, administrative as well as in the private, company level sphere may certainly help to foster foreign direct investment (FDI). Such links may firstly create knowledge about the potential of the 'other side', it may also create personal contacts, reduce administrative barriers etc. For the less developed countries and regions in the Danube Region FDI certainly constitutes, at least in the short run, an interesting way to foster economic development.

Challenges: The main challenge, from a regional perspective, is the enormous heterogeneity of regions in the Danube Region. This not only refers to the differences between the Member States Area 1 and the rest of the Danube Region, but also to the differences between and also within the latter countries. Economically strong regions, either capital cities or industrialised regions, are opposed by weak agricultural regions. Without any action the gap between these regions is likely to increase in the future, given some fundamental differences in attractiveness and economic potential these regions possess. Moreover, these increasing economic gaps will have repercussions on the social and also environmental sphere, given that the improvement of both of them depends to a large extent on the available income.

Preliminary recommendations and suggestions for further action: From a regional perspective it is recommended to not regard the countries of the Danube Region as homogenous entities. Rather they should be viewed of be-

ing the sum of quite differentiated regions, in terms of income, industrial structure etc., which all have their own needs to develop and prosper. Thus, policies may focus on certain types of regions, like highly urbanised regions, industrial and agricultural regions. Cooperation and knowledge exchange between regions of the same types in the various countries may be strengthened.

Thereby, especially the experiences of the prosperous regions may be valuable for the less developed regions, especially in the Member States Area 3. Even in Austria, the more agricultural regions, e.g. in Burgenland or Lower Austria, have much more difficulties in generating employment and income for their population than more industrialised regions. Over time structures (political, administrative, economic, etc.) have evolved to deal with such problems, and they might bear interesting starting points for similar regions elsewhere in the Danube Region. Similar holds for industrial and urban regions.

2.4 Infrastructure and Environment

Potential Opportunities: The Danube Region has the potential to become a more competitive economic zone by improving transport network connectivity, accessibility, and resource efficiency. Infrastructure improvements and increases in efficiency reduce the unit costs of transport and production, increase the capacity for passenger and freight traffic, and make the business environment in general more attractive. Currently, infrastructure quality and environmental standards are significantly declining towards the east of the Danube Region. Therefore, there are large opportunities for the less developed countries in the east for sustainable development and growth. In particular, inter- and intra-regional trade opportunities can be improved by increasing the quality of their transport infrastructure, mostly ports and railroad systems but also road systems. A centrepiece of the development of the region is the Danube River itself. It has high potential of handling additional transport needs cost efficiently and environment friendly. Intermodal transport from the ports to the hinterland can increase the potential transport opportunities of the Danube River. Moreover, enhancing the Danube River infrastructure improves the competitiveness, market integration, and potential trade opportunities for the whole region.

The energy sector is rather well developed with high quality of energy supply and a high share of renewable electricity. Nonetheless, there is still a high potential of reducing transmission and distribution losses in the electricity grid and thus improving energy efficiency, in particular in the eastern countries of the Danube Region. Also, in many eastern countries, renewable electricity is almost exclusively produced from hydro power. Solar and wind energy seem to have the potential to further diversify the electricity mix and help to reduce energy import dependency.

Needs: In order to increase competitiveness the provision of an efficient and effective transportation network is crucial. For this, in particular in the eastern Danube countries, it is needed to modernize and expand the existing transportation systems, but also to increase their utilization rate. Given that sustainability becomes more important on the political and social agenda, improving further the safety of transport and shifting transport volumes from road to more climate-friendly modes of transportation (i.e. railroad and waterborne transport) are further needs.

The Danube River might play an important role in this regard. Today, the Danube ports are in rather bad shape. They need to be improved and new ports have to be built to meet higher transport volumes. Damages from the Yugoslav Wars such as debris in the river bed and destroyed bridges have to be removed. Also, a deepening of the riverbed is needed for greater vessels from the Rhine River and the Sea. The fleet of the Danube River needs to be modernized in order to meet common standards of the Rhine River and the Rhine-Main-Danube-Canal.

Challenges: Economic growth and future prosperity of society rely on adequate energy supply. Taking into account the threats of global warming and climate change, most likely caused by the burning of fossil fuels, it is a major challenge to meet increasing future energy demand and, at the same time, reduce carbon emissions. This also holds true for the Danube Region.

The rise of the sea level and more frequent extreme weather events are predicted consequences of global warming. Such long-term changes do not only entail economic costs but also represent a significant challenge on transport and energy infrastructure. The countries of the Danube Region need to adapt

their infrastructure in order to ensure stable economic conditions for industry and trade.

As regards the improvement of the Danube River, which was identified as key for the further development of the region's transportation networks, there is a consensus to be found across all concerned countries. This is a challenge by its own. Moreover, enhancing the use of the Danube River as a waterway and, at the same time, preserving its natural habitat and not causing severe environmental damage is also a challenging task.

Preliminary recommendations:

- Strengthening intermodal transport and integrating infrastructure across modes and countries (removing cross-border barriers).
- Removing debris and destroyed bridges and deepening the riverbed of the Danube in order to be compatible with the Rhine River and river-sea ships from the Black Sea.
- Improving environmental waste management of industrial areas alongside the Danube River, in particular in eastern European countries. This would help to fully exploit the economic potential of the Danube River as transport route, while keeping its ecological balance intact.
- Integrating electricity markets to stabilize supply and prices across countries.
- Reducing transmission and distribution losses in the electricity grid.
- Increasing the share of renewable energy (where economically justified) to reduce energy import dependency and further diversify energy mix.
- Improving CO2 efficiency of production (i.e. reducing CO2 emissions per PPP $ of GDP), in particular in those countries that fail the international benchmarks considerably.

2.5 Entrepreneurship

Potential Opportunities: Entrepreneurship and start-ups have the potential of playing a major role for increasing the competitiveness of the Danube Region.

The most important aspect here is that true entrepreneurs can be regarded as "agents of chance". Entrepreneurs try to bring new methods, processes, products and services to the market thereby challenging existing firms and their business models. This can lead to a stream of innovations initiated not only by the new firms but also by existing firms in response to increased competition due to the entry of new firms. Furthermore, new firms can cause existing firms to exit. This can have positive effects on the competitiveness of the Danube Region if outdated processes and products disappear together with the closed firms. As the results in this report show there is a lot of firm dynamics going on in a number of countries of the Danube Region. Thus, the stock of firms is renewed to a substantial degree. Whether this is a development towards the better is a still open question which remains to be addressed in the second part of the project. But in principle, the high firm dynamics can be interpreted as a sign that the Danube Region is on the way to increased competitiveness.

Challenges: As our analyses in this report show, one of the main issues in the Danube Region is the still high level of corruption. This seriously impedes the activities of existing business but also has strong negative effects for the establishment of new firms because potential founders may be discouraged from actually setting up their firm. In addition, it might be the case that firms that are started are not those with the highest social value but whose founders are most able to deal with the rules of corruption. There have been various attempts to reduce corruption in the Danube Region. However, they were only moderately successful. Finding measures in order to confine corruption remains the main challenge for improving the conditions for entrepreneurship.

Another issue concerns the administrative burden for setting up a firm. According to the Doing Business-Reports of the World Bank there have been major improvements in the administrative conditions for starting a firm in the Danube Region since 2003. However, the Danube Region still ranks below the EU and the OECD in this respect. Thus, there is still room for improvement.

What is also not easy is finding the right target group for measures of entrepreneurship policy. When thinking about start-ups, policy makers often assume that they simply need to increase the number of start-ups in order to stimulate the development of a region or a country. The reason is that start-ups are in general associated with innovation and job creation. However, as

the scientific literature has shown, this is not the case. The average start-up is not innovative at all, it employs nobody except the founder, does not create much jobs and has a high likelihood of closing in the first years after establishment. Yet, this does not mean that entrepreneurship policy is completely useless. There are, of course, start-ups which have the potential to exert a large positive influence on the (regional) economic development. And they face problems in unfolding their full potential so that they need support. The challenge here is to identify just these high-potential firms because at the beginning they can look like the average business. In addition, it can be demanding to develop support programmes because high-potential firms can have almost idiosyncratic needs.

Needs: Concerning entrepreneurship, the needs for the Danube Region follow directly from the challenges listed above. There is a need for working measures to reduce corruption, for further efforts to cut administrative burdens and for a good eye for identifying high-potential start-ups. In addition, there is also a need for more data and information about firms in the Danube Region. This applies especially to the non-EU countries of the Danube Region. While there is at least some information on firm dynamics available at Eurostat for the EU countries, the project team was not able to find any information on firms in the non-EU countries of the Danube Region.

Preliminary recommendations: As mentioned above, the average start-up does not contribute much to the development of a region or a country. It is therefore likely that generic start-up support will not have much impact in terms of innovation and (job) growth. Instead, it seems to make more sense to develop policies targeted towards start-ups which have the potential to become so called high-growth firms (HGFs). Although it is an extremely difficult task to identify HGFs there are some hints in the entrepreneurship literature on the characteristics of HGFs. 1) HGFs have strong ambitions to not only serve domestic markets but also to expand internationally; 2) The products of HGFs and improvements of them emerge in strong collaboration with costumers; 3) HGFs place a strong emphasis on sales and marketing, and 4) The managers of HGFs have strong leadership skills. These characteristics offer starting points to develop policy measures in order to support high-impact firms. Sensible measures may include support programmes for internationalisation as well as the development of specialist sales and marketing skills, but also pro-

grammes that initiate or reinforce collaboration between firms and their customers as well as programmes that initiate networks between entrepreneurs so that leadership skills can be exchanged between firm owners. Because of their focus on internationalisation, collaboration and networks these approaches also incorporate the potential to serve the overall goal of the EUSDR of increasing cooperation between the countries of the Danube Region. However, these recommendations are based on evidence gained from Western countries.[3] It might be the case that some subregions of the Danube Region struggle with special challenges so that special actions are required with respect to the support of entrepreneurship. This might be especially relevant for the Eastern countries of the Danube Region which are still in the process of transformation from communist countries to market economies. Identifying these special challenges will be part of the second part of the project.

2.6 SME Financing

Potential opportunities: SMEs have the strength to adapt to opportunities and changes, and to innovate, developing and offering new goods and services. In times of crisis the SMEs are more vulnerable than large firms. However, after the crises due to the capacity to adapt to changes in the economic and business environment, the recovery process for SMEs is often faster. The capital inflows, bolstered by more stable FDI inflows, that are returning to the Danube Region since 2010 and the EU funding for the Region led to more favourable development of the financial situation of SMEs in the Danube Region than in the EU. These results are reported by SMEs' managers in the Danube Region and are presented in the "SMEs' Access to Finance – Survey 2013 by the EU Commission".

Indicators representing a positive development in the Danube Region which was better than in the EU regard the firms' growth, firm's own capital, firms' confidence in obtaining future financing from banks but also the overall faster improvement of the financial environment compared to the EU. Further indicators addressing the question on how firms finance their operations show

[3] These recommendations draw heavily on Mason, Colin and Ross Brown (2013).

improvements as well. These indicators compare the relative use of various sources to finance investment such as internal funds, bank loans and grants. As excessive reliance on internal funds is a sign of potentially inefficient financial intermediation or a limited access of firms to capital, the steadily falling values for the use of internal funds indicate an improved access to capital in the Danube Region in 2013 compared to 2009 and 2011.

Challenges: SMEs face different challenges with regard to financing compared to large businesses. While large companies have access to equity capital markets, the equity markets are not accessible to the vast majority of SMEs. The lack of equity capital invested in SMEs makes them more reliant on other sources such as bank lending, entrepreneur's own savings, retained earnings or funds resulting from the sale of assets.

The severe crisis of 2008/2009 has brought additional challenges for SME as the credit supply conditions significantly tightened arising from the reduced ability and willingness of banks to provide the financing on which this sector is particularly reliant. However, in the last 2-3 years the financing conditions stabilized. Indicators as willingness of banks to provide a loan or access to public finance are still among the major challenges facing SMEs' managers, nevertheless, these indicators showed a gradual improvement in the last 3 years. Further core challenges from the financing perspective can be derived from the limiting factors to get external financing in order to realise the firm's growth ambitions. According to the managers insufficient collaterals and interest rates being too high are the two largest obstacles to external funding.

Needs: The challenge for the SMEs is often not primarily the lack of financial sources but the barriers to apply for funding. According to SMEs' managers especially the application for EU funding comprises high bureaucratic barriers and time consuming procedures. In 2013, managers across the EU rated "making existing public measures easier to obtain" (for example through the reduction of administrative burdens) and "tax incentives" as the two most important measures, when asked to rate the importance of a number of different mechanisms to help their company's financing in the future. They were followed by "guarantees for loans" and "business support services". Although there is a reduction in the level of importance of all factors since 2009, SMEs'

managers of the Danube Region rate all the factors (except for "guarantees for loans") at above EU levels for both years.

Furthermore, evaluation reports also highlight the need for more technical assistance through the application process. Additionally, more information tools for potential applicants are needed. According to SMEs' managers, knowledge about funding opportunities, key dates of calls for proposals and application processes need to be spread to the business community.

Preliminary recommendations: To a large extent recommendations concern the national and especially the operational level as well as the institutions and bodies responsible for the implementation of the specific financial support programmes.

- Better information for beneficiaries: Establishing of well-targeted information channels which consider the needs of recipient groups; exchange of best practices to allow for wider learning.
- Simplifications: Cleaning of application procedures from confusing and overwhelming documentation requirements that can differ widely from one funding scheme to another; simplified costs (flat rates).
- Desirability of financial engineering instruments being implemented as an alternative to limited grant resources.
- Further major restriction arises from the lack of pre-finance resulting from the real-cost principle shifting from the programme level to the beneficiaries. Therefore, the need of provision of (or support in looking for) co-financing is crucial.[4]

2.7 Cluster development

Potential opportunities: The importance of cluster-based activity is growing in the Danube Region as more and more countries have adopted active cluster development policies and inter-cluster cooperation has started to move up on

[4] These recommendations are mainly based on the analysis of Tödtling-Schönhofer, H. et al. (2011), Barriers for applicants to Structural Funding, European Parliament, DG Internal Policies, 2012.

the economic agenda at regional level. There is factual evidence related to robust concentration of firms across the Danube Region in several industry sectors, such as automotive, metal manufacturing, production technology, construction, processed food, transportation and logistics etc.

The experience of countries with more developed clusters and mature cluster organisations can be used for know-how transfer towards emergent clusters and cluster organisations. Both advanced and less advanced countries in the Danube Region may cooperate in pushing for cluster development in new industries or key technologies, such as ITC, renewable energy, environment, healthcare or micro/nano-technology.

Challenges: Cross-cluster cooperation needs proper facilitation - economic concentrations of cluster will not cooperate extensively without the existence of cluster initiatives and organisations. However, the mere creation of cluster organisations will not be a universal panacea to provide competitiveness and cooperation. The road to excellence is a long winding one, and the learning/capacity building process is critical.

In addition to this, the public push for cluster development and cross-cluster cooperation needs to by reciprocated by a market/business pull, with enough traction to create sustainability. The balance is difficult to achieve - too much public support will prevent true ownership by the private sector, too little public support may not overcome possible market failures and information asymmetry.

Needs: The first critical barrier in assessing the capacity of cluster organisations to engage in cross-cluster cooperation activities is related to availability and quality of data and information. Data is scarce and unreliable, regardless its origin at EU, government or private sector level. Data on clusters and on cluster organisation should be crosschecked and gathered from multiple sources in an organised and transparent way. Using Government, cluster organisation and independent research data at the same time can be critical for having a proper design of cluster development and cooperation initiatives and for evidence-based policy.

Also policy evaluation is a key issue, especially given the new generation of criticism suggesting that building an entrepreneurial ecosystem is more about facilitating talent and individual entrepreneurs rather than about building

support structures. All public stakeholders promoting cluster development initiatives or programmes need to properly invest in evaluation and monitoring.

Preliminary recommendations: Labelling clusters at EU level may prove difficult and costly to implement. Voluntary labelling should be preserved, as compulsory labelling may lead to administrative cost and market distortion. As an alternative, simple and transparent benchmarking, coupled with rigorous self-assessment may be a solution.

Supporting the creation of National Cluster Associations[5] in all countries of the Danube Region as an unique contact point of info and reporting would be advisable, provided that it will not become an administrative monopoly of some sort regarding cluster development.

Differentiating between robust/mature cluster and emergent clusters can be useful in terms of cluster-cooperation goals and know-how sharing agenda within the Danube Region.

[5] several countries of the Danube region already have National Cluster Associations, so best practices are available;

3 Prosperity and Competitiveness in the Danube Region

3.1 Macroeconomic Performance

3.1.1 Gross Domestic Product

The market value of final goods and services produced in an economy during one year is measured by the Gross Domestic Product (GDP). Therefore, the respective value of GDP is traditionally regarded as a measure of economic strength of a country or a region.

To get an impression of the economic performance of the Danube region, its subgroups as well as some benchmark regions, the respective values of GDP are displayed in Table 1. It becomes obvious that GDP in the Danube Region is significantly lower than both in the EU-27 and in the OECD countries. In the following, GDP will be scaled by population size or number of persons employed in order to control for the different sizes of the economies.[6] Irrespective of this, Table 1 shows that in the years between 2003 and 2012 the GDP (measured in €) of the Danube region increased by 19.0% in real terms, while GDP growth for the EU-27 and OECD was smaller, reaching 10.7% and 14.1%, respectively. Thus, a catch-up effect of the Danube region is apparent. Within the Danube region, Member States Area 3 displays an above average growth rate of 26.1%, which is even surpassed by the Accession and Neighbouring Countries with growth rates of more than 28%.

Whereas in 2003, the countries of Member States Area 1 (Austria, Baden-Wuerttemberg and Bavaria) accounted for 67% of GDP of the whole Danube Region (Annex Figure 124), by 2011 this share has slightly decreased by two percentage points and amounted to 65% (Figure 2). Hungary, the Czech Republic, Slovenia and Slovakia together (Member States Area 2) amount to 18% of the Danube Region's GDP in 2011, which implies an increase by one percentage point compared to 2003.

[6] The used numbers for the population size of the subregions of the Danube Region are given in Table 18 in the annex.

Table 1: GDP and real GDP growth rates for the OECD, the EU-27, the Danube Region and its subgroups

GDP in Billion, constant 2005€			
	2003	**2012**	**Real Growth 2003-2012 (in %)**
EU-27	10,586	11,768	10.7
OECD	27,234	30,697	14.1
Danube	1,370	1,626	19.0
Member States Area 1	921	1,062	16.2
Member States Area 2	236	293	22.8
Member States Area 3	124	157	26.1
Accession Countries	27	35	28.0
Neighbouring Countries	62	79	28.3

Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, EO, HR; Accession Countries: RS, BA, ME; Neighboring Countries: MD, UA.
Source: Eurostat, UNdata, World Bank, Federal and Regional Statistical Offices in Germany. Calculation and illustration: IAW.

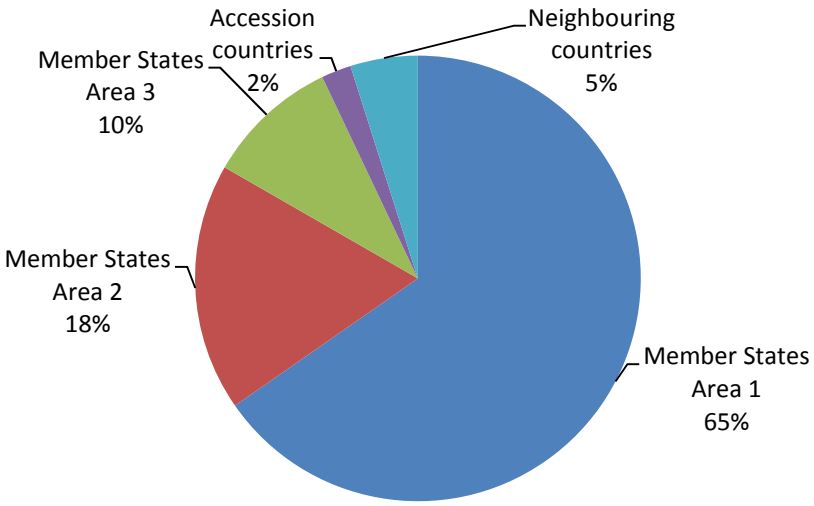
Box 1: Methodological explanation

We use real GDP data, i.e. we use prices of a base year (here: 2005) to adjust the changes in GDP for inflation.

The third group formed by Croatia, Bulgaria and Romania (Member States Area 3) exhibits a share of 10% of total Danube Region GDP in 2011, which also exceeds the group's share in 2003 by one percentage point.

The shares of Accession Countries and Neighbouring Countries in total Danube Region GDP amount to 2% and 5% respectively, both in 2011 and 2003.

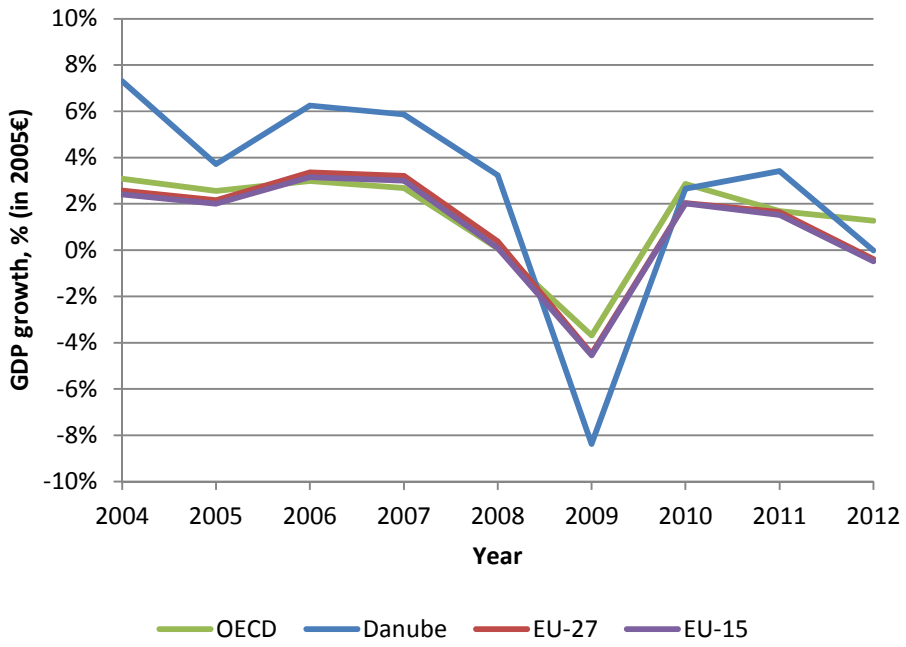
Figure 2: Share of GDP of the subregions of the Danube Region in total GDP of the Danube Region in 2011 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Data for BA and the Neighbouring Countries not available in constant 2005 € from 2012 onwards. Calculation and illustration: IAW.

Figure 3 shows total real GDP growth in the countries of the Danube Region, the OECD, the EU-15 and the EU-27 between 2004 and 2011. The Danube Region's growth rate during the observed period is substantially higher than the ones for the OECD, the EU-15 and the EU-27 countries. Figure 125 in the Annex also shows total real GDP growth experienced by the subgroups within the Danube Region between 2004 and 2011. Member States Area 1, formed by Bavaria, Baden-Wuerttemberg and Austria, grew by 15% between 2003 and 2011, Member States Area 2, formed by Hungary, the Czech Republic, Slovakia and Slovenia, by 24%, Member States Area 3, composed of Croatia, Bulgaria and Romania, by 26%, the Accession Countries by 31.6% and the Neighbouring Countries by 28%.

Figure 3: Yearly real GDP growth 2004-2012 (in %)



Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder
Calculation and illustration: IAW.

From Figure 3 we can draw the following developments: Real GDP growth evolution for the OECD, the EU-15 and the EU-27 countries was relatively constant at 3% between 2004 and 2007. Between 2007 and 2009, coinciding with the financial crisis, the series shows a sharp decrease reaching its lowest value in 2009 with a negative growth of -4%. In 2010, real GDP growth showed signs of an incipient recovery at a rate of approximately 2%. In 2011, the series again exhibited a slight decrease, however not comparable with the sharp drop experienced in 2009. The Danube Region experienced higher real GDP growth rates than the OECD, the EU-15 and the EU-27 countries over the period 2004 to 2008 as well as during the period after the financial crisis. More specifically, growth rates amounted to 7% for the Danube Region compared to the around 3% growth rate for the OECD, EU-15 and EU-27 countries in the years preceding the financial crises. During the hot phase of the financial crisis in 2009, the drop in real GDP growth in the Danube Region was stronger than in the EU-27 and OECD countries. In 2009, the Danube Region experienced a negative real GDP growth rate of -8%. All in all, real GDP growth has been

more volatile in the Danube Region than in the OECD, EU-15 and EU-27 countries during the observed period.

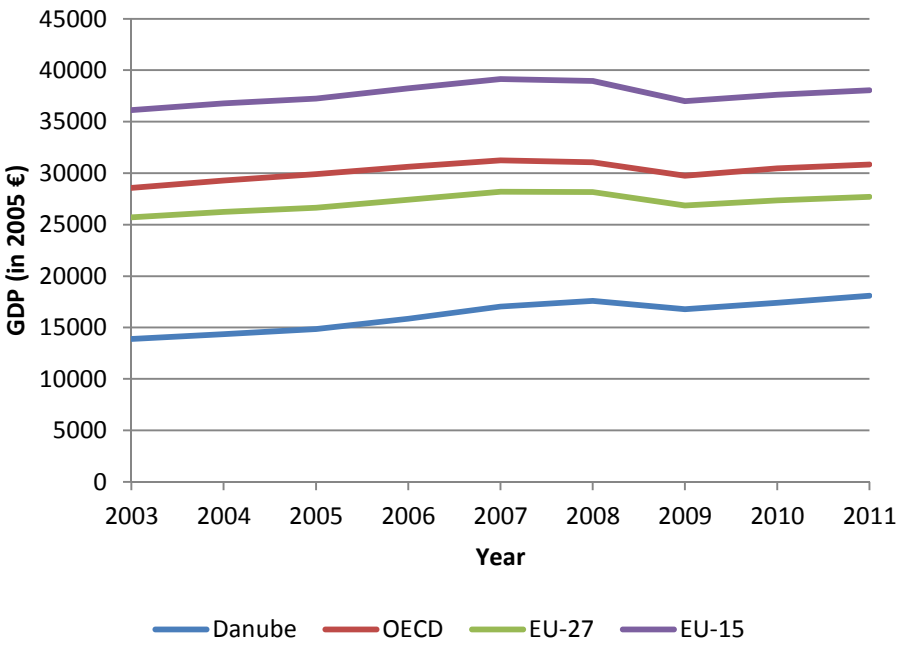
Regarding the development of real GDP growth from 2004 to 2012 in the different subgroups of the Danube Region, the EU Member States have experienced a negative real GDP growth rate of about -6% in 2009, while the Accession Countries exhibit a negative growth rate of "only" -3.5%. The Neighbouring Countries have suffered more intensely from the consequences of the financial crisis, resulting in a negative growth rate of -14% in 2009 (Annex Figure 125).

3.1.2 Prosperity and Distribution Indicators

Figure 4 shows GDP per capita (PPP adjusted) of the Danube Region in comparison with the OECD, the EU-15 and the EU-27 countries. GDP per capita is commonly used as a proxy to measure welfare. For all country aggregates we see a steady increase, which is only interrupted by the economic crisis in 2009. In the observed period, the EU-15 has the highest level of GDP per capita reaching a value of 38,050 US$ (PPP, in 2005$) in 2011, followed by the OECD countries (30,850 US$), and the EU-27 (27,700 US$). The Danube Region's GDP per capita reached 18,100 US$ in 2011 which is the lowest value of all economic areas under consideration. The Danube countries' average annual growth between 2005 and 2011, however, was 4.6% - that indicates a catch-up effect because EU-27, OECD and EU-15 grew by only 0.8%, 0.7% and 0.5%, respectively.

With respect to the levels of GDP per capita of the subgroups of the Danube Region, the countries forming the Member States Area 1 enjoy the highest prosperity level, with GDP per capita of about 37,000 US$ (Annex Figure 126). A wide margin separates them from the Member States 2, which reach a GDP per capita of around 20,000 US$, followed by Member States 3 with approximately 14,000 US$. The Accession Countries have a GDP level of 9,000 US$ per capita and the Neighbouring countries reach 7,000 US$. Therefore, GDP per capita follows an upward trend for all subgroups.

Figure 4: GDP per capita, PPP adjusted



Source: OECD, Penn World Tables, World Bank, GENESIS online Datenbank. Calculation and illustration: IAW.

Above, it was mentioned that GDP per capita is only a proxy for the overall economic wellbeing of the population of a country. This is due to the fact that it only measures the level of income in a country, but not its distribution among the population. Therefore, in the following, we will analyse the income distribution in the Danube Region and in the benchmark regions in detail. In doing so, we use the Gini coefficient as an indicator for inequality.

The Gini coefficient measures the extent to which the distribution of a continuous variable (in most cases case but also consumption expenditures) among economic units (e.g. individuals or households) within an economy deviates from the theoretical case of an equal distribution. High values of the Gini coefficient indicate high inequality, while low values of the Gini coefficient represent low inequality.

As explained in the Box 2, one has to be careful when comparing the results of the individual countries and therefore also the country groups as comparability could be limited due to differences in the underlying concepts. Therefore,

this has to be taken into account, meaning that one should not read too much into the results.

Box 2: Note from the World Bank's Metadata for Gini-Index

"The underlying household surveys differ in method and type of the collected data. Therefore, data on the distribution of income or consumption are not strictly comparable across countries. In particular, two sources of non-comparability should be noted. First, surveys can differ with respect to the indicator for living standard (whether income or consumption expenditure is used). The distribution of income is typically more unequal than the distribution of consumption. In addition, definitions of income often differ among surveys. Second, households differ in size (number of members) and in the extent to which income is shared among members. Moreover individuals differ in age and consumption needs. Differences among countries in this respect may lead to bias when comparing income distributions."

Source: World Bank's Metadata for Gini-Index.

Table 2 shows that the income-based Gini coefficients of Member States Area 3 countries, especially those of Bulgaria and Romania, exhibit the highest values, which indicates the highest income inequality among the compared countries. This group is followed by Member States Area 1, where a convergence between Germany and Austria can be observed in the past few years. Member States Area 2 overall displays the lowest level of inequality, with only small deviations between the countries. Slovakia even shows the lowest level of inequality of all Member States.

Comparing the values of the Member State subgroups of the Danube Region with the EU-15 and the EU-27, it can be seen that the countries of Member States Area 1 and 2 exhibit a below average income inequality, whereas in the countries of the Member States Area 3 income inequality is above average.

The most notable decrease of inequality over time for the period considered has taken place in Germany, Bulgaria and Romania (which might indicate for the latter a convergence of the most recent EU members towards the EU average). Slight increases in the level of inequality can be observed for Austria, Hungary and Croatia.

Table 2: Income-based Gini Coefficient (based on disposable income)

Countries	2007	2008	2009	2010	2011	2012
Germany	30.4	30.2	29.1	29.3	29.0	28.3
Austria	26.2	26.2	25.7	26.1	26.3	27.6
Hungary	25.6	25.2	24.7	24.1	26.8	26.9
Czech Republic	25.3	24.7	25.1	24.9	25.2	24.9
Slovenia	24.5	23.7	24.8	25.9	25.7	25.3
Slovakia	23.2	23.4	22.7	23.8	23.8	23.7
Bulgaria	35.3	35.9	33.4	33.2	35.0	33.6
Romania	37.8	36.0	34.9	33.3	33.2	33.2
Croatia	29.0	28.0	27.0	31.4	31.0	30.5
Montenegro	26.4	25.3	26.4	24.3	25.9	26.5
EU-27	30.6	30.9	30.5	30.5	30.8	30.6
EU-15	30.3	30.8	30.4	30.5	30.9	30.7

Source: Eurostat, Montenegro: Monstat, Department for labour market, living conditions, social services and household consumption. Calculation and illustration: IAW.

Table 3: Consumption-based Gini coefficient (based on the level of consumption)

Countries	2007	2008	2009	2010	2011	2012
Serbia	29.4	28.2	27.8	29.6		
Bosnia and Herzegovina	36.2					
Moldova	35.3	35.3	34.0	33.0		
Ukraine			25.6	25.3	24.3	23.3

Source: Worldbank WDI and Statistical office Ukraine. Calculation and illustration: IAW.

Concerning the Accession Countries, comparability is more difficult due to different calculations of the Gini-coefficient (as mentioned in the methodological box). Table 3 indicates that heterogeneity is higher in the Accession and Neighbouring Countries. As data for the income-based Gini coefficient were not available, we use the consumption-based Gini coefficient. Based on the given data, one can conclude that the level of inequality in the Accession

Countries remained rather constant over the past years, while a slight decrease can be observed for the Neighbouring Countries.

3.1.3 GDP components and sectors

There are different approaches to determine the Gross Domestic Product of a country (which all lead to the same value of GDP). In the following, we rely on the expenditure and the output approach. These two approaches are shortly described in Box 3. Here we focus on the last two methods, i.e. the expenditure and the output approach.

Box 3: Methodological explanation: Approaches to determine GDP

The expenditure approach is based on the idea that most goods and services produced in an economy are produced to be sold. Therefore, Gross Domestic Product can be calculated using the expenditures to buy these goods and services. The expenditures include the following components: private consumption, public consumption, investment, and net exports (exports minus imports).

With the output approach, also called Value Added Method, the GDP is calculated as the sum of total gross value added plus taxes minus subsidies for products. Gross value added is the net result of the gross value of output at basic prices minus intermediate goods valued at purchaser's prices.

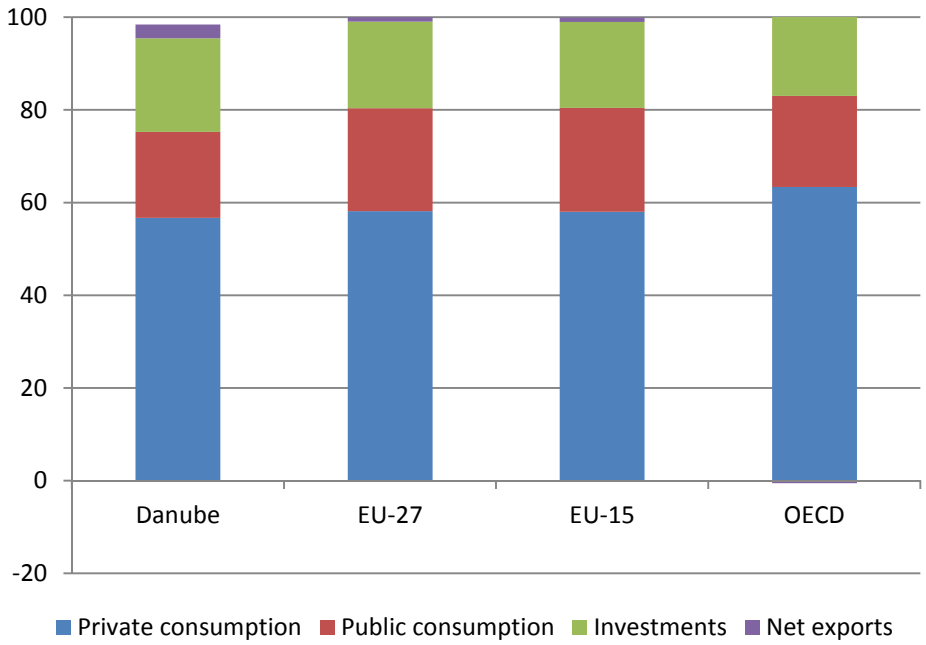
Gross value added can be broken down by economic activities, the most common classification being the division into Agriculture, Industry and Services sector.

Components of GDP (Expenditure side)

Figure 5 shows the fraction of the single components of GDP according to the expenditure approach (private and public consumption, investment and net exports) in the Danube Region, OECD, EU-15 and EU-27 in 2010. In 2010, the share of private consumption in GDP in the Danube Region was 56.7%, the public consumption share was 18.5%, the investment share was 20.2%, and the net exports 3%. With this the private and the public consumption shares in the Danube Region were slightly lower than in the EU-15, the EU-27 and the OECD countries. In contrast, the shares of investment and net export in GDP were higher in the Danube Region than in the other country groups.

Comparing the shares of the GDP components in the Danube Region between 2004 and 2010, it can be observed that the shares of net exports and public consumption increased by 0.4 and 0.7 percentage points, respectively, while the shares of investment and private consumption decreased by 1.4 and 0.5 percentage points, respectively (Annex Figure 127).

Figure 5: GDP components in 2010 (in %)



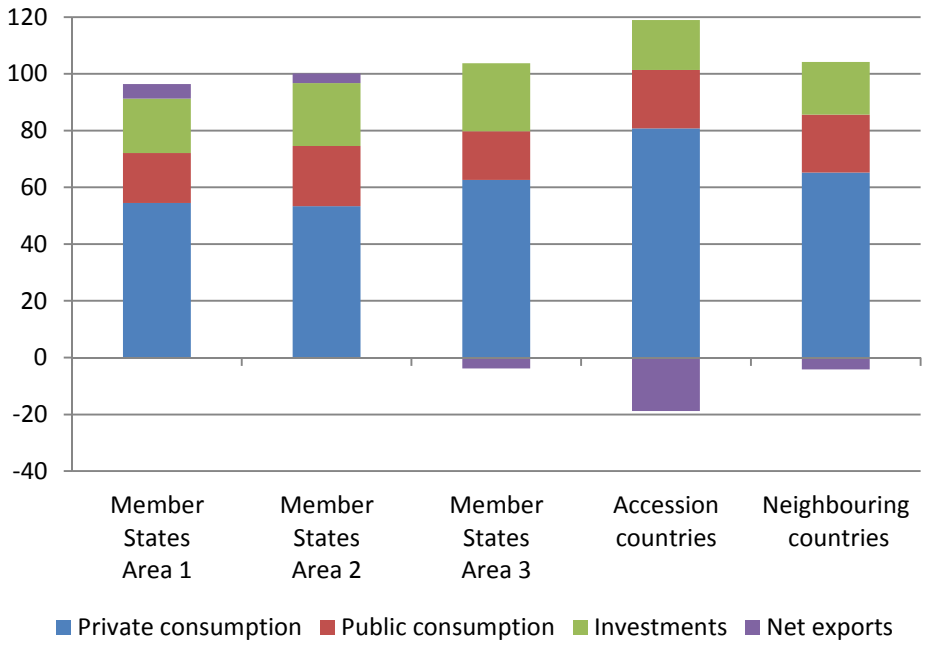
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. The shares of the GDP components in the Danube Region do not amount to 100 % because at the regional (Bundesland) level in Germany - and therefore, for Bavaria and Baden-Wuerttemberg – there is a "residual GDP component" that does not solely consists of the net exports. Calculation and illustration: IAW.

Figure 6 shows the shares of the different GDP components for the subgroups of the Danube Region in 2010. In Member States Area 1 and 2, private consumption had a share of approximately 50% of GDP, public consumption and investment about 20% each and the net export share is positive reaching more than 3%, meaning that in these country groups the exports are higher than the imports.

Furthermore, the countries of Member States Area 3 and the Neighbouring Countries had a private consumption share of GDP of approximately 60% and

a negative net export share of around -4%, which means that imports exceed exports. Group 3 exhibits an investment share of GDP of 24% while for the Neighbouring countries it is at approximately 19%. Public consumption represents 17% and 20% of GDP, respectively.

Figure 6: GDP components in 2010, by subregions of the Danube Region (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. The most recent year with complete data coverage:2010. For Member States Area 1, 100% mark is not reached because for BW and BY proxies have been used for net exports. Calculation and illustration: IAW.

The composition of the GDP of the Accession Countries deviates significantly from the pattern observed for the other country groups. While public consumption and investment shares of GDP are similar to those of the other country groups, the private consumption share of GDP in 2010 is 83% and net exports exhibit a GDP share of -19%. This implies that GDP is widely driven by private consumption and that there is a large deficit in foreign trade.

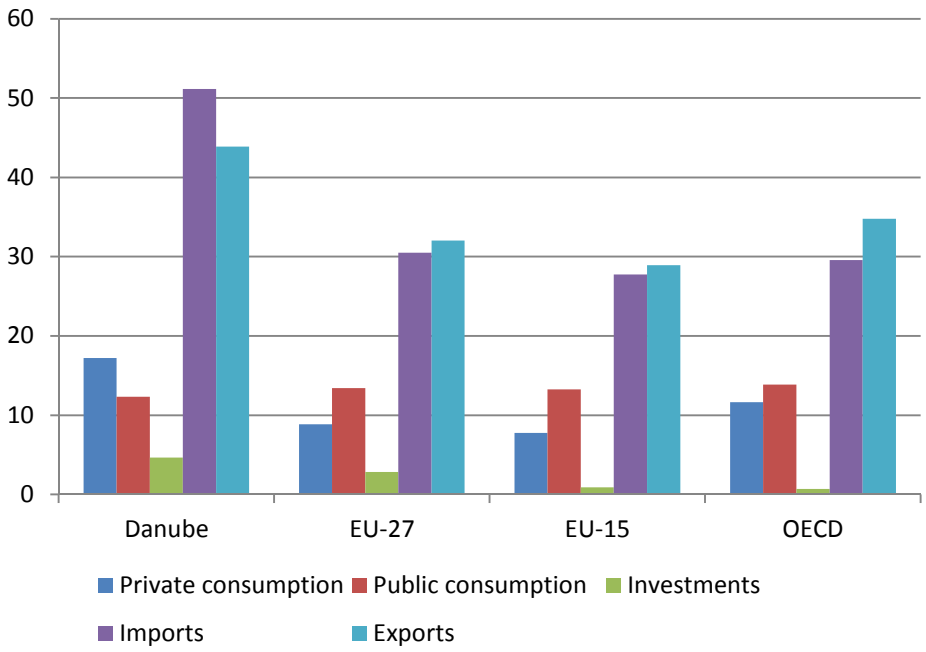
Comparing the shares of the GDP components in 2010 with the values for 2004, we can observe the following (Annex Figure 128): In Member States Ares 2, the investment share of GDP has decreased; furthermore, this group has turned around its trade balance. In 2004 the net export share was negative while it was positive in 2010. The Neighbouring countries have increased their private consumption share mainly at the expense of deteriorating their trade position, since the net export share has turned negative.

In contrast to this, the group formed by Croatia, Bulgaria and Romania (Member States 3) has improved its trade balance, even if the net export share of GDP remains negative. This occurred mainly by reducing the private consumption share of GDP. The Accession Countries have carried out a big effort to diminish their trade imbalances, however at the cost of a reduced investment share. In spite of this effort, the net export share is still negative. The expenditure structure in the group formed by Bavaria, Baden-Wuerttemberg and Austria (Member States 1) has not changed much between 2004 and 2010.

Figure 7 shows the total growth rate of GDP components between 2003 and 2010 in the Danube Region, the OECD, the EU-15 and the EU-27. In this period, the imports of the Danube Region exhibited the highest growth rate with an approximate rate of 50% followed by exports with a growth rate of about 43%. The growth rate of private consumption comes third (approximately 18%) followed by public consumption with approximately 12%. The Investment had a growth rate of approximately 5% over the considered period.

Comparing these results with the GDP component growth rates over the analysed period for the OECD, EU-15 and EU-27, we can observe that with the exception of public consumption all GDP components grew at a higher rate in the Danube Region than in the OECD, EU-15 or EU-27. However, in the Danube Region the growth in export were lower than growth in imports which is in contrast to the EU-15, the EU-27 and the OECD countries where export growth dominates import growth.

Figure 7: Growth rates of GDP components from 2003 to 2010 (in %)

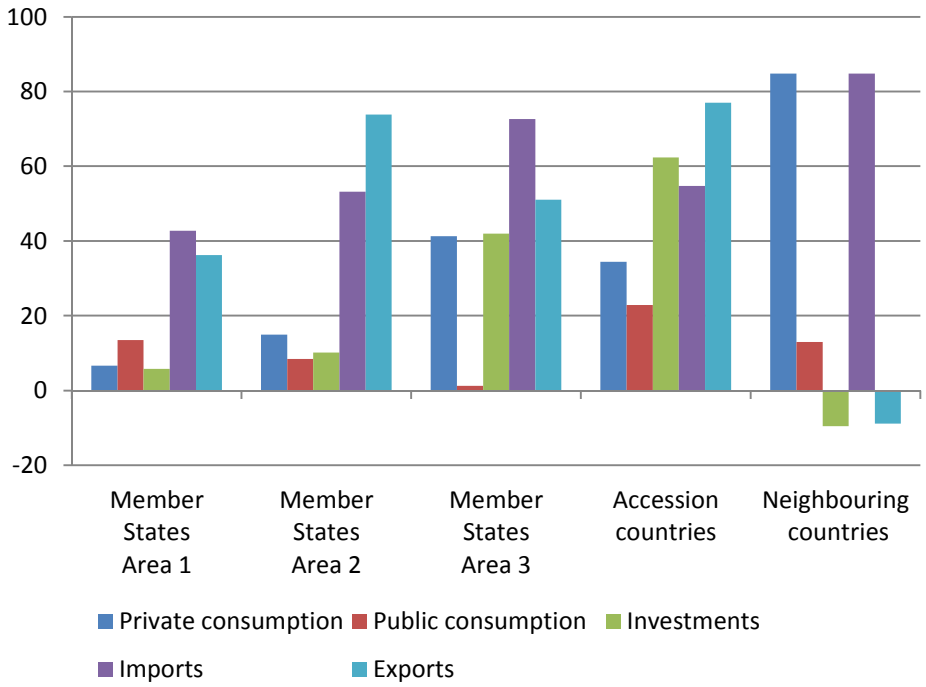


Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. No data available for BA, ME, MD and UA for 2012. Calculation and illustration: IAW.

As Figure 8 shows there have been substantial differences between the subregions of the Danube Region with respect to the growth rates of the GDP components: Private consumption and investment exhibited low growth between 2003 and 2010 in the group formed by Baden-Wuerttemberg, Bavaria and Austria (Member States Area 1). In contrast, export and import growth rates amounted to around 40%, with import growth slightly exceeding export growth.

In the countries of Member States Area 2 private consumption and investment also exhibited low growth rates. Especially noteworthy is the fact that imports grew by around 55% over this period, while exports even reached a growth rate of about 75%.

Figure 8: Growth rates of real GDP components from 2003 to 2010, by subregions of the Danube Region (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. No data available for Bosnia BA, Montenegro, MD and UA for 2012. Calculation and illustration: IAW.

The group formed by Croatia, Bulgaria and Romania (Member States Area 3) exhibited growth rates of its GDP components of above 40%, with the exception of public consumption, which stayed almost constant over the period considered. However, the growth rate of imports has been higher than the growth rate of exports (about 75 and 50%, respectively).

In the Accession Countries, investment growth reached more than 60%, which is the largest increase of all country groups. An even sharper boost was reached by exports, with export growth surpassing import growth. Private and public consumption exhibited growth rates of approximately 30% and 20%, respectively.

Imports and private consumption in the Neighbouring Countries grew by over 80% between 2003 and 2010. Public consumption has grown by approximately 10% over this period, while exports and investment had negative growth rates of approximately 10% over the period considered. The decline in investments and the worsening of the trade position are to be seen negatively.

Several observations can be made with respect to the annual growth rates, i.e. the percentage change from the previous year to the current year, of the different GDP components (private and public consumption, investment, exports and imports) in the Danube Region, the OECD and the EU-27 countries (Annex Figure 129 to Figure 133).

In the analysed period, from 2004 to 2011, investment, as well as exports and imports are the most volatile GDP components. The annual growth rates of these components vary between +15% to -15%. Negative growth rates of -15% are reached in 2009 coinciding with the outbreak of the financial crisis.

One striking fact is that, with the exception of public consumption, the remaining GDP components grow more strongly in the Danube Region than in the EU-27 and the OECD countries in periods of economic booms, while they exhibit weaker growth rates in periods of economic downturns. Thus, the development of the GDP components in the Danube Region seems to have a stronger link with the economic cycle than in the EU-27 and the OECD countries.

All GDP components except public consumption had positive growth rates before and after the outbreak of the financial crisis, which points to a rapid recovery. On the contrary, in 2009 all mentioned GDP components had negative growth rates.

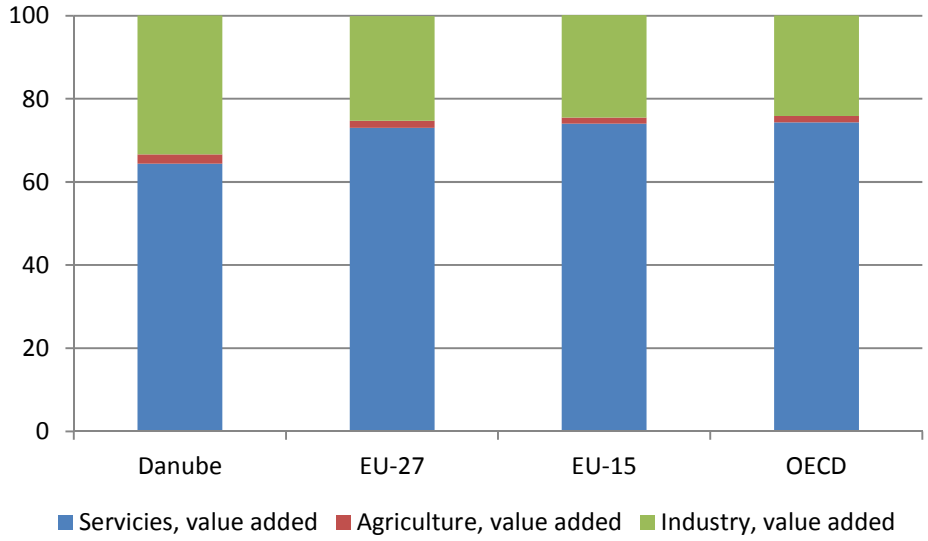
In contrast, public consumption, increased in 2009. This is probably due to the expansionary fiscal policies carried out in most economies around the world at the outbreak of the financial crisis.

Sectoral structure of GDP (Output approach)

Concerning the decomposition of the GDP, it is also interesting to know to what extent the different economic sectors – i.e. agriculture, industry and services - contribute to the regions' GDP. Figure 9 shows the sectoral composition of GDP for the year 2010. It is quite obvious that the service sector exhib-

its the highest GDP share in all country groups considered. While for the OECD, the EU-15 and the EU-27 countries the services shares of GDP are above 70% and have increased by approximately 2 percentage points from 2003 (Annex Figure 134) to 2010, the respective share of the Danube Region remained below 70% (about 64%). The already relatively small share of agriculture (around 2% for the OECD, the EU-15 and the EU-27 countries and 3% for the countries of the Danube region) decreased for all four country groups over the considered period. For the OECD, the EU-15 and the EU-27, the share of the secondary sector, the industry (including the construction sector), also decreases over time (by about 2 percentage points), while it increases for the Danube Region (by slightly more than 1 percentage point). In the year 2010 it contributes a third (33.5%) of total value added, and therefore, more than in the OECD, the EU-15 and the EU-27 (with 24.2%, 24.6% and 25.2%, respectively).

Figure 9: Contribution of sectors to GDP in 2010 (in %)



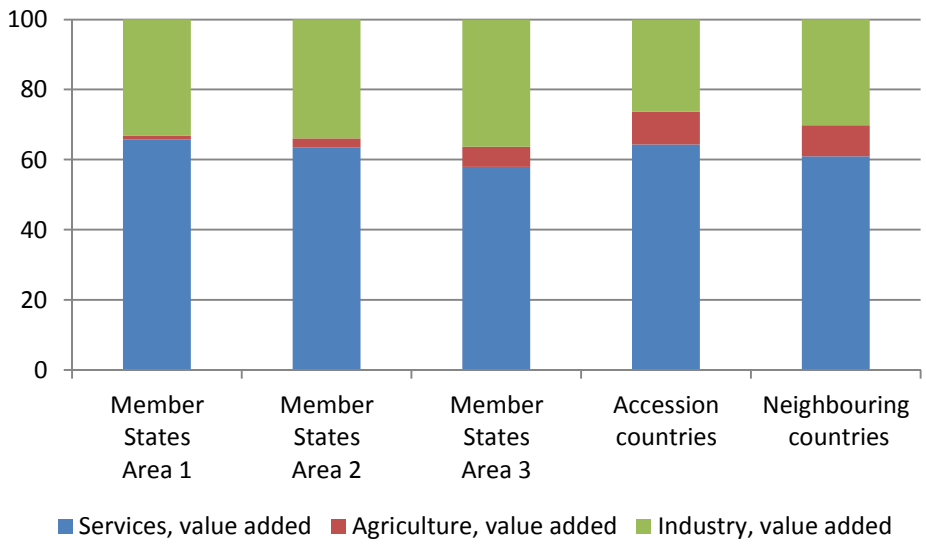
Source: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW.

A more detailed view is given in Figure 12 which shows the GDP shares of the main economic activities (services, industry and agriculture) for the subgroups of the Danube Region.

In 2010, the countries of the Member States Area 1 had GDP shares of the service, industry and agriculture sector of 65.6%, 33.4% and 0.9%, respectively. In comparison with 2003 (Annex Figure 135), the share of the service and agricultural sector has decreased while the share of the industry sector has increased.

The countries of the Member States Area 2 have a similar economic structure as the countries of Member States Area 1. The main difference is a larger agricultural sector (2.9% of GDP), which is compensated by a smaller service sector. In comparison with 2003, this country group experienced an increase in the GDP share of the service and industry sector and a decrease in the agricultural sector.

Figure 10: GDP sectors in 2010, by subregions of the Danube Region in (%)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW.

In contrast, the Accession Countries and the Neighbouring Countries have a high agricultural sector. This contributes approximately 9% to GDP. In the case of the Accession Countries this translates into a smaller industry sector, while for the Neighbouring Countries this implies a smaller service sector.

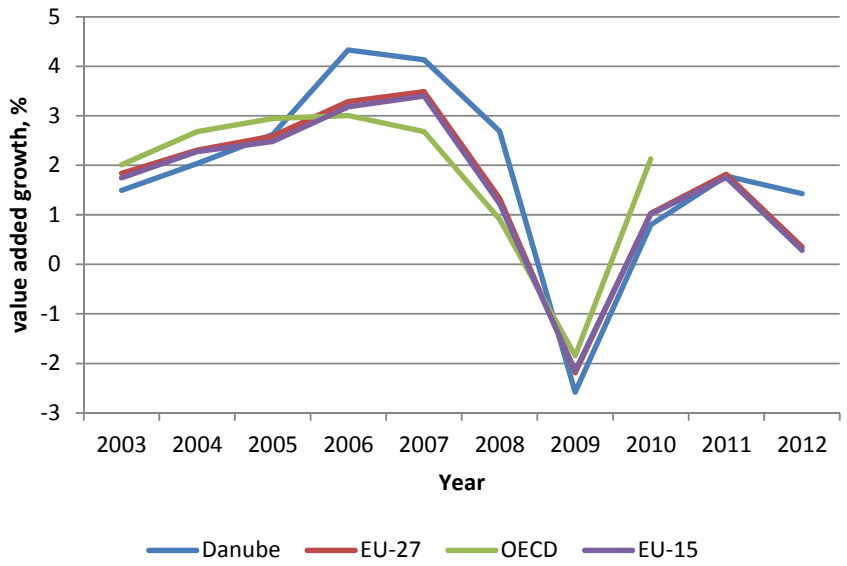
In comparison with 2003, both country groups have succeeded in reducing the size of their agricultural sector, and especially noteworthy is the change that the Neighbouring Countries have experienced (Annex Figure 135).

The countries of the Member States Area 3 have GDP shares of the service, industry and agricultural sector of 58.9%, 34.6% and 6.2%, respectively. Thus, these countries are positioned between the more advanced economies of the Danube Region (Member States Area 1 and Member States Area 2) and those who are still catching up (Accession Countries and Neighbouring Countries). In comparison with 2003, the agricultural sector has strongly diminished in size, while the industry sector has gained in importance.

In the last century, there has been a shift in the composition of GDP in industrialised countries from the primary and secondary sector towards the tertiary sector, the latter being meanwhile the most important sector in advanced economies. Figure 11 shows that, between 2003 and 2012, the annual growth rate of value added of the service sector was, on average, higher in the Danube Region than in the benchmark regions. While the growth of value added before the economic crisis was much higher in the Danube Region than in the OECD, the EU-15 or the EU-27 countries, it only decreased slightly more during the hot phase of the crisis in 2009 than in the benchmark regions. By now, all regions are back to positive growth rates.

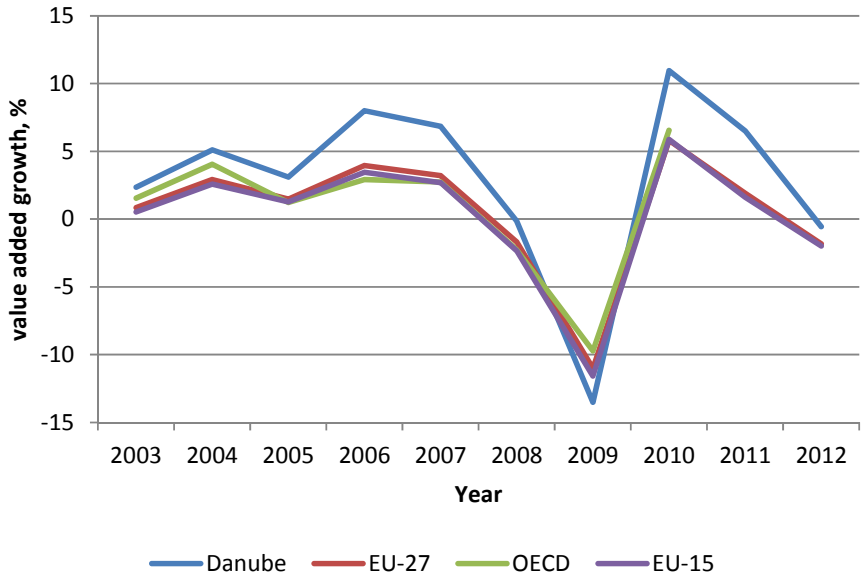
As for the Danube Region's industrial sector, value added growth between 2003 and 2012 has been higher than in the benchmark regions (Figure 12). We can clearly observe that cyclical changes in growth rates move in the same direction in all regions considered. In almost every year, the Danube Region outperforms the benchmark regions. In all regions, the positive development between 2003 and 2007 was followed by a downturn in 2008 at the beginning of the economic crisis, which reached its hot phase in 2009, resulting in negative growth rates between -10% and -15%. In the following year, we can observe a marked recovery, with growth rates above 10% in the Danube Region. Nevertheless, all regions experienced a small slowdown in industry value added growth towards the end of the period considered.

Figure 11: Annual growth rates of value added, 2003-2012 – Services



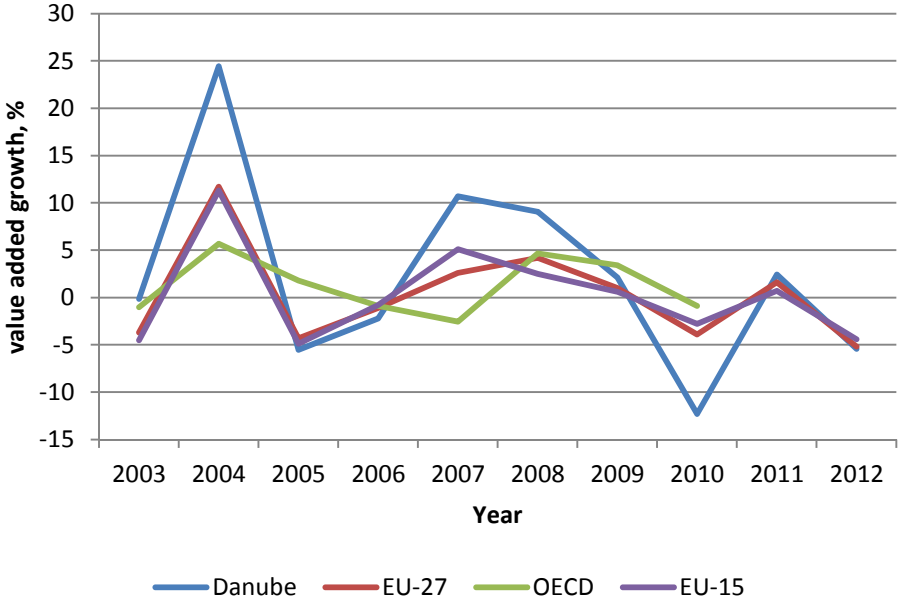
Source: Eurostat, World Bank, Statistische Ämter der Länder.
No data for RS for 2010 and for ¾ of the countries no reliable data available for 2011 onwards. Calculation and illustration: IAW.

Figure 12: Annual growth rates of value added, 2003-2012 – Industry



Source: Eurostat, World Bank, Statistische Ämter der Länder.
No data for RS for 2010 and for ¾ of the countries no reliable data available for 2011 onwards. Calculation and illustration: IAW.

Figure 13: Annual growth rates of value added, 2003-2012 – Agriculture



Source: Eurostat, World Bank, Statistische Ämter der Länder.
No data for RS for 2010 and for ¾ of the countries no reliable data available for 2011 onwards. Calculation and illustration: IAW.

Agriculture, the so-called primary sector, contributes only a small part to GDP in the industrialised world. Figure 13 shows that the Danube Region exhibits the highest fluctuations in this economic sector. While the growth rates of the OECD, the EU-15 and the EU-27 countries mostly lie between +/- 5%, the Danube Region reaches positive growth rates of up to 25% (2004) and negative rates up to 13% (2010). These fluctuations in the agricultural sector, however, have no great influence on total value added of the economy because this sector is not that large.

3.1.4 Public Financing and Indebtness

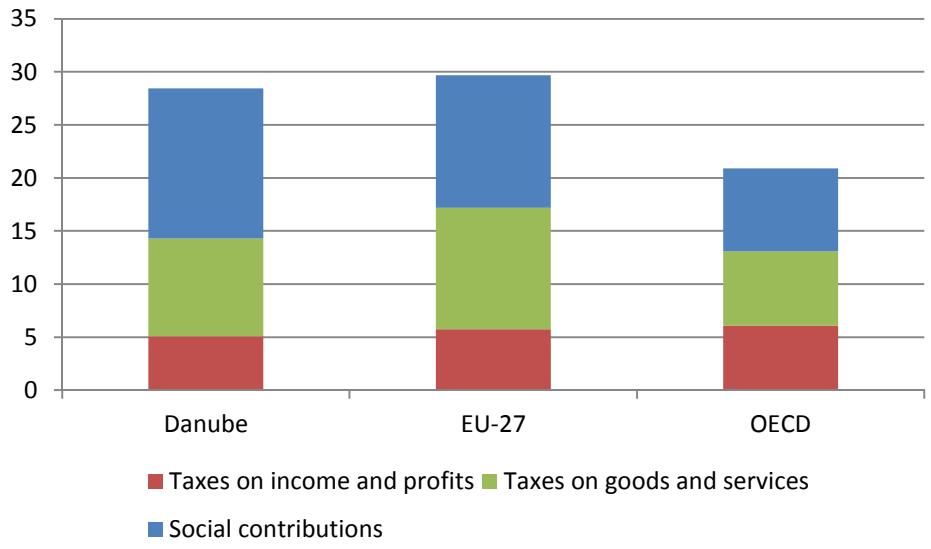
The economic performance of a region is strongly influenced by government finance, such as the system of taxation and domestic and foreign government debt, because this may provide limits to future finance policy. In this context, the tax and social security contribution ratios of the Danube Region and their reference country groups will be analysed.

Figure 14 and Figure 15 show three different sources of public revenue:

- Taxes on income, profits, and capital gains are impositions levied on the actual or presumptive net income of individuals, on the profits of corporations and enterprises, and on capital gains – whether realised or not – on land, securities, and other assets.
- Taxes on goods and services including taxation on general sales and turnover or value added, selective goods and services, the taxation of the use of goods or property, on extraction and production of minerals, and on profits of fiscal monopolies.
- Social contributions include social security contributions by employees, their employers, and by self-employed individuals as well as other contributions whose source cannot be exactly determined. They also comprise actual or imputed contributions to social insurance schemes operated by governments.

We first focus on the Danube Region. The most important source of public revenue is social contributions, which amount to about 14% of the GDP of the region, followed by taxes on goods and services (9% of GDP) and taxes on income, profit and capital gains with about 5% of GDP (see Figure 14).

Figure 14: Tax aggregates in year 2011, (in % of GDP)



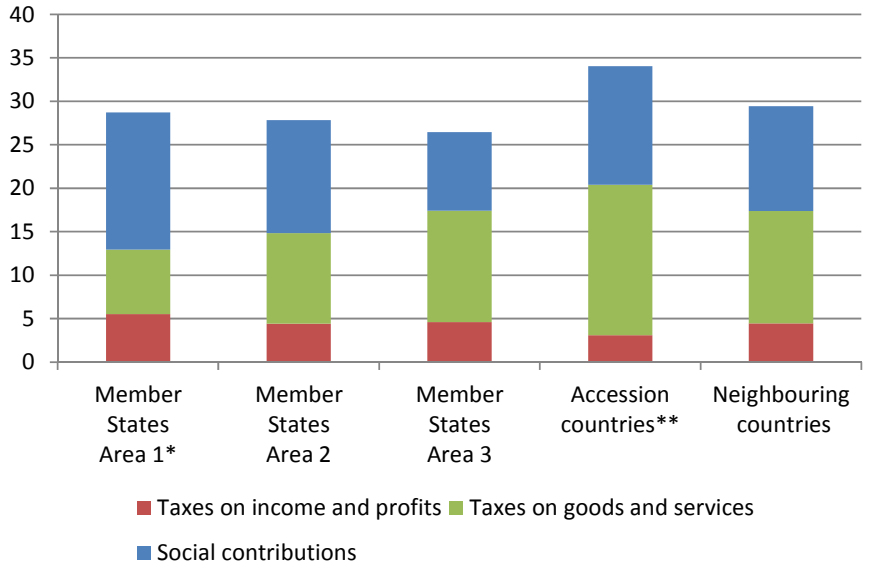
Notes: For Baden-Wuerttemberg and Bavaria, Germany has been used as a proxy
Source: World Bank, WDI. Calculation and illustration: IAW.

This same rank of importance can be found in the EU-27, which also exhibits tax shares similar to those of the Danube Region. However, the countries of the EU-27 rely less on social contributions and more on taxes on goods and services than the countries of the Danube Region.

In the OECD, on the contrary, there is no such big difference between the different sources of public revenue, i.e. all three aggregates exhibit similar shares of GDP, which lie between 6 and 8%. Furthermore, the sum of the three shares is markedly lower than in the Danube Region and EU-27, indicating other public debt and/or expenditure levels.

Regarding the Danube Region's subgroups, the Member States 1 and Member States 2 show a similar pattern as the Danube Region concerning the ranking of the sources of public revenue (Figure 15). The Member States 3, Accession Countries and Neighbouring Countries, in contrast, have higher shares of public revenues proceeding from taxes on goods and services. It is also worth mentioning that the overall public revenue emanating from these three sources amounts to a higher share of GDP in Accession Countries and Neighbouring Countries than in the Member States.

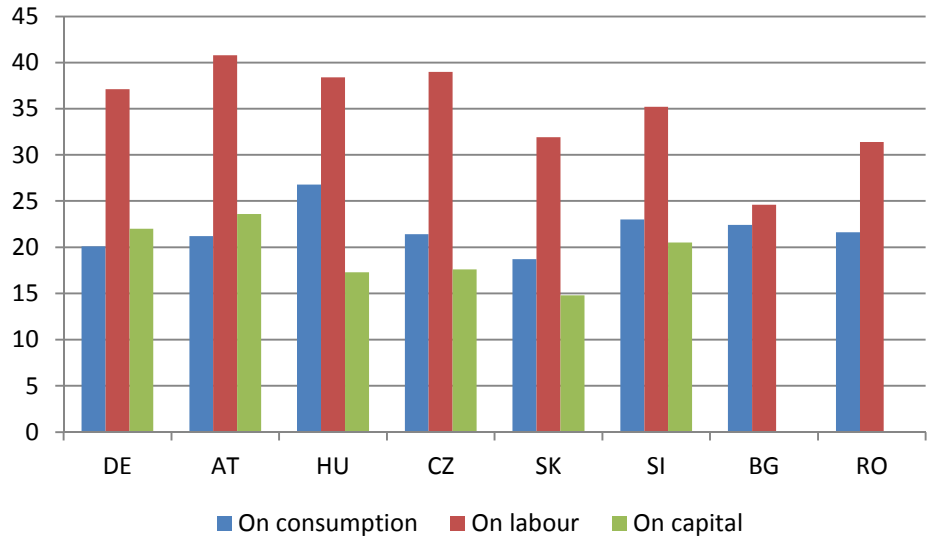
Figure 15: Tax aggregates in year 2011, by subregions of the Danube Region (in % of GDP)



Notes: *For Baden-Wuerttemberg and Bavaria, Germany has been used as a proxy. **without ME
Source: World Bank, WDI. Calculation and illustration: IAW.

Figure 16 shows the implicit tax rates on consumption, labour and capital in the Member States in 2011. For all countries, tax burden on labour income is highest of these three subjects. The maximum tax rates on labour can be found in Austria, Hungary and the Czech Republic with rates above 35%. With regard to the taxation of consumption, Hungary, the Czech Republic and Slovenia exhibit the highest tax rates of above 20%. Finally, based on incomplete information on capital tax rates, it has to be pointed out that the highest tax rates on capital can be found in Germany, Austria and Slovenia, where these tax rates lie above 20%.

Figure 16: Implicit tax rates 2011

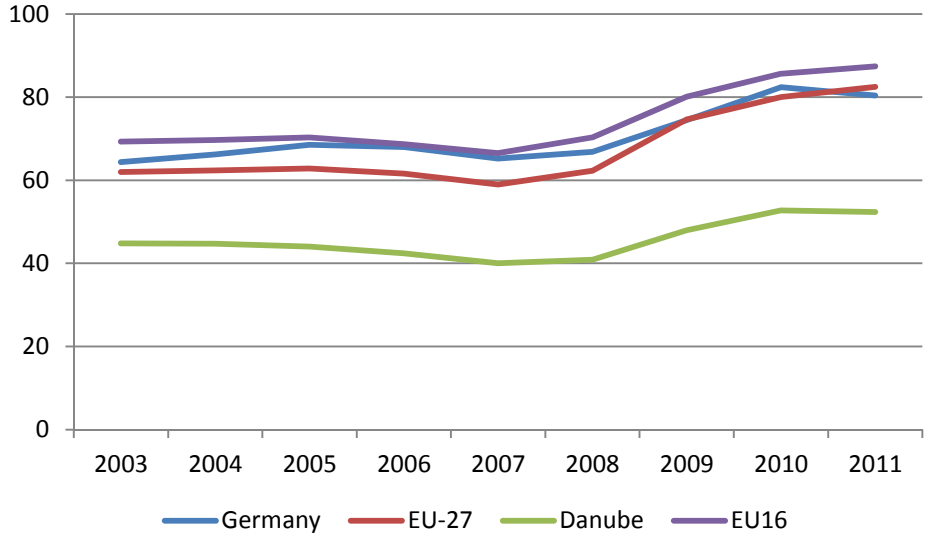


Source: Eurostat. Calculation and illustration: IAW.

The scope of future public expenditures is determined by current sovereign debt. Therefore, Figure 17 depicts the public debt rates (sovereign debt relative to GDP) of the single country groups, a measure which ist also used as a European convergence criterion. It shows similar developments of general government consolidated gross debt across all four regional aggregates, although the Danube Region's level is significantly below those of EU-16, EU-

27 and Germany.[7] In 2009 and over the following years, we can see an increase due to the economic crisis and its aftermath.

Figure 17: General government consolidated gross debt 2003-2011 (in % of GDP)

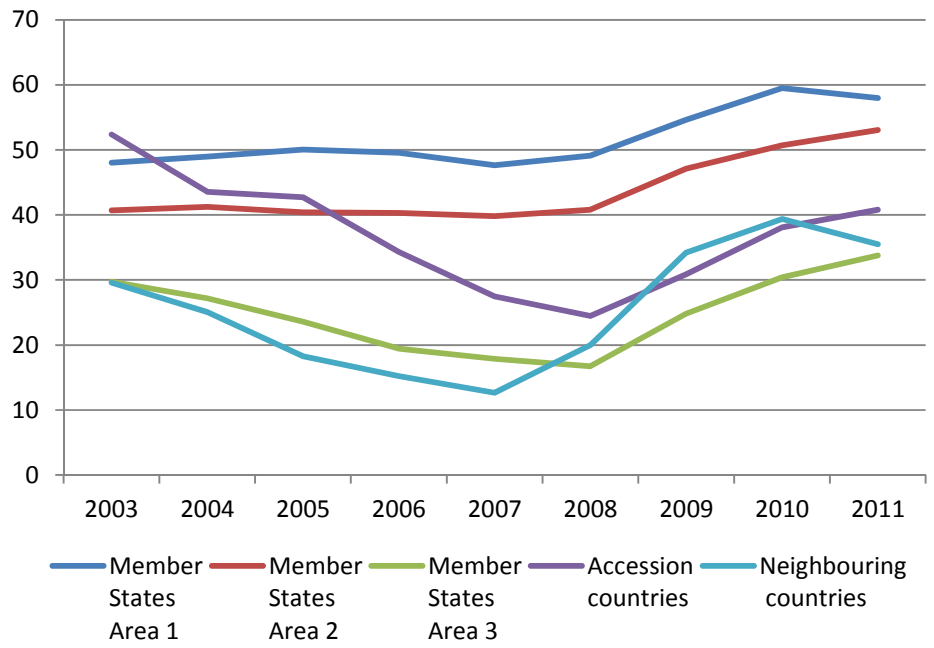


Notes: EU-16 instead of EU-15 is used because no data was available for the latter.
Source: Eurostat and German Ministry of Finance. Calculation and illustration: IAW.

Taking into account the heterogeneity within the Danube Region, we can see similar developments for Member States of Areas 1 and 2 on the one hand and for Member State of Area 3 and Neighbouring Countries on the other hand. All subgroups had decreasing or at least constant government debts rates before the start of economic crisis in 2008 and increasing debt during the crisis that partly continues afterwards. The Accession and the Neighbouring Countries display the highest volatility over the depicted period. While the Member States of Area 1 had the highest level of debt in relation to GDP, up to 60% at its peak, the Neighbouring Countries reached the lowest levels, falling back to around 12% of GDP in 2007.

[7] Here we use EU-16 instead of EU-15 (because no data was available for the latter).

Figure 18: General government consolidated gross debt 2003-2011, by subregions of the Danube Region (in % of GDP)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat and Bundesministerium für Finanzen. Illustration and calculation: IAW.

3.1.5 Trade, FDI and exchange rates

Foreign Direct Investment (FDI) constitutes an important mean of international economic integration. It interlaces the world more closely and encourages the transfer of technological know-how. Furthermore, it might help developing countries to develop faster, as it is an additional source of investment funding. FDI can take on many forms: a firm might enter a foreign market by using an existing business facility (brownfield investment), e.g. through Mergers and Acquisitions (M&A) or a joint venture with a local enterprise, or it might found a new plant abroad (Greenfield investment). Generally, one talks about FDI when an investor can influence management decisions and pursues long-term interests in a foreign affiliate. This criterion is said to be fulfilled if

an investor holds firm shares or voting rights exceeding the widely accepted OECD benchmark of 10%.[8]

We can further distinguish between vertical and horizontal forms of FDI. The acquisition of (intermediate) inputs via vertical FDI, on the one hand, is foremost a mean to reduce production costs by exploiting factor cost differences across countries. Horizontal FDI, on the other hand, involves the production of final goods directed to the foreign market in the destination country and serves to avoid transport costs or trade barriers. The line between these two types of FDI is not always clear-cut, as some firms may simultaneously pursue both motives. This information, however, is typically internal to the firm and hence it is not possible to distinguish both forms only by looking at data on investment flows or stocks. Given the motive of these investments, one might conjecture that FDI flows between developed economies are more likely to reflect horizontal investments, while FDI flows from a developed to a developing economy are more likely to be vertical in nature.[9]

Inward FDI stocks refer to all direct investments in an economy by non-residents, while outward FDI stocks capture the investments by residents made in foreign countries.[10] Besides FDI, there are also portfolio investments. This form of investment aims at short term gains and does not entail control of the firm; therefore, portfolio investment is more volatile than FDI.[11]

Figure 19 compares the inward and outward FDI stocks relative to the GDP of the Danube Region, the EU-27, and NAFTA for the period 2005-2011.

For all observed regions, we notice that in 2008, both, the inward and outward FDI ratio decreased. Only one year later, however, FDI stocks were back at their previous levels or even above. Even though the changes that followed differed across regions, in 2011, all regions had higher FDI ratios than during the economic crisis in 2008.

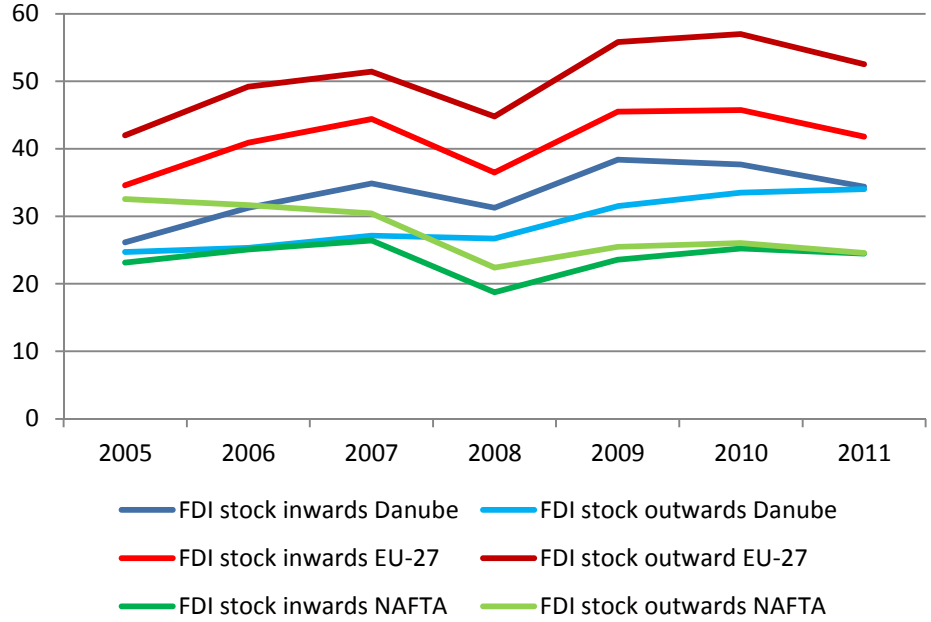
[8] See OECD (2008)

[9] See Navaretti, Venables (2006)

[10] Compare OECD library: FDI and Eurostat pocketbook (2007)

[11] Compare Investopedia: Portfolio Investments.

Figure 19: FDI stocks over time (in % of GDP)



Source: UNCTAD. Central Banks of Serbia and Montenegro. For Bavaria and Baden-Wuerttemberg: Deutsche Bundesbank. Calculation and illustration: IAW

The EU-27 has the highest (relative) outward FDI stock, which amounts to 45% of GDP in 2008 and around 57% of GDP in the following years. The inward FDI ratio is also higher than in the other country groups, rising from around 35% in 2005 to 44% and 46%, respectively, in the following years. The inward FDI stock for the Danube Region varies between 26% and 34% of GDP during the observed period, while the outward stock starts with 25% in 2006 and caught up the inward rate in 2011 (33%). Compared to NAFTA, the Danube Region both receives and sends more FDI in relative terms neglecting the first years of the observed period.

For the EU-27, the outward FDI stock exceeds the inward stock (expressed in % of GDP) over the entire period, so these regions conduct more investments abroad compared to the respective external funds they receive. The same holds for the NAFTA referring to the first part of the underlying period, whereas in 2011 the inward FDI rate reached the outward rate. A convergence can also be observed for the Danube Region: after inward FDI dominated outward FDI for many years the outward rate caught up the inward rate in 2011.

Concerning all subgroups, inward FDI stocks clearly follow a rising trend, even though they decreased in all Member State groups during the economic crisis (Annex Figure 136). Especially noteworthy is the steady increase of inward FDI stocks in the Accession Countries, which makes them second after the Member States 2 countries. Both groups reach inward FDI ratios between 60% and 70%. They are followed by Member States Area 3 and the Neighbouring Countries. Member States Area 1 is far behind the other subgroups, never reaching inward FDI ratios of more than 25%.

Regarding outward FDI stocks, the Member States Area 1 displays the greatest variation over time, reaching from 32% of GDP in 2003 to 52% in 2011. The Member States Area 2 ranks second, with an outward FDI stock starting from around 5% of GDP in 2003, which has been rising steadily since then to 13% in 2012. For the Member States Area 3, the Neighbouring Countries, and the Accession Countries, the outward FDI stock has been increasing, too, but ranges from less than 1% to only 7% of GDP for the entire period (Annex Figure 137).

Domestic investment is an important driver of economic growth. Here, investment is defined as gross capital formation. When analysing this variable, one has to bear in mind that net values might differ due to differences in depreciation rates.

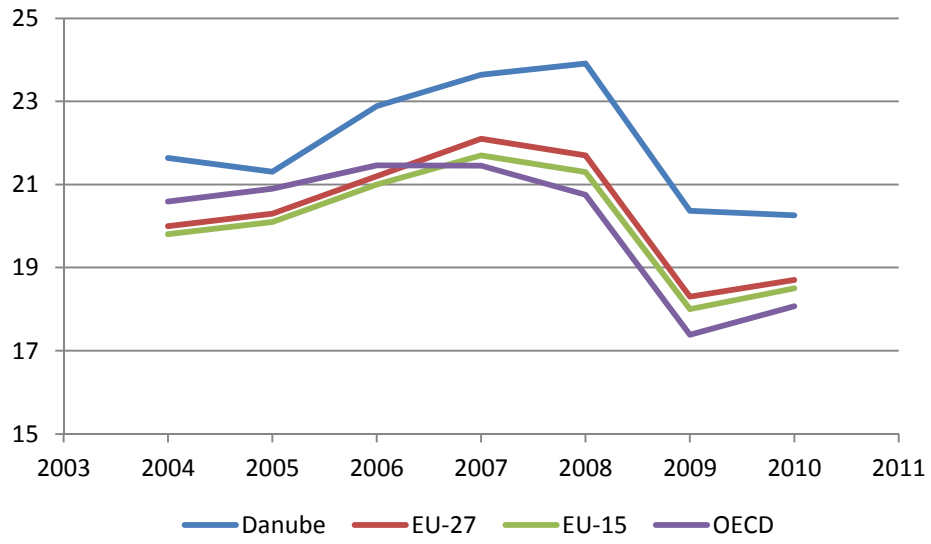
Figure 20 shows that the domestic investment rate, defined as gross capital formation in % of GDP, in the Danube Region is above the OECD and EU-27 averages for the entire period 2004-2010. It starts in 2004 at close to 22% and peaks in 2008 at 24% of GDP. These numbers for the Danube Region exceed the domestic investment rate of the EU-27, which reaches its peak in 2007 at around 22% of GDP, while the OECD average alternates about 21% from 2004 to 2008. After 2008, the domestic investment rate decreases dramatically and slowly starts to recover after 2009 for all three regional aggregates. The above average size of the investment rate of the Danube Region shows a catch-up process referring to capital endowment.

Within the Danube Region, Member States Area 3 has one of the highest investment rates over the depicted period, with a peak of around 32% of GDP in 2008. In contrast, Member States Area 1 has one of the lowest domestic investment rates, which is relatively constant at about 20% of GDP. The other

subgroups develop rather parallel with peaks in 2007/2008 and steep declines thereafter. Mostly, they move within a bound of 20% to 30%.

The fact that the newer members and the Accession and Neighbouring countries have higher investment rates is probably due to the circumstance that they still have a greater need and potential for capital accumulation (catching-up), whereas the Member States Area 1 comprises highly advanced economies (Annex Figure 138).

Figure 20: Domestic investment (in % of GDP)



Source: Eurostat, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW

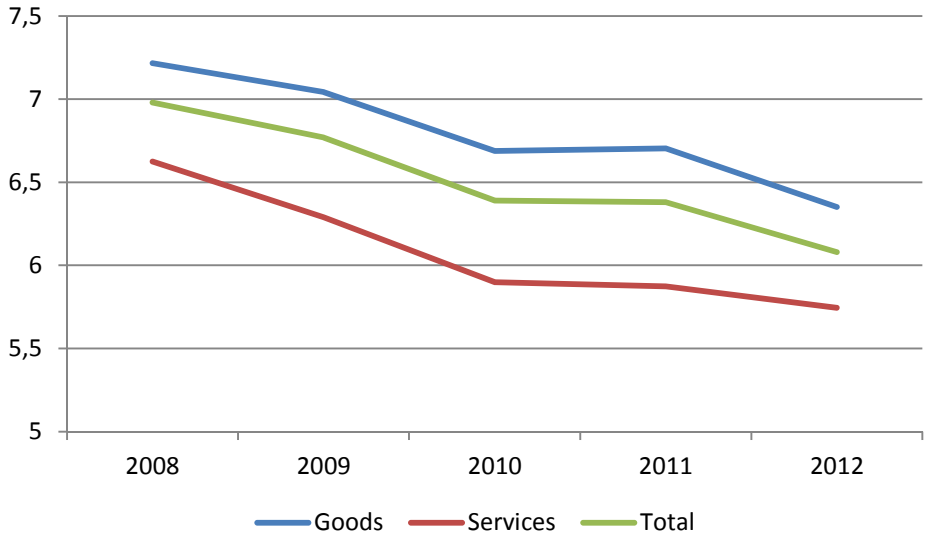
Trade

The international interdependence of national economies is reflected not only by FDI in- and outflows but also by their participation in foreign trade which is measured in the following as a country´s or region´s share in the global export volume.

The illustration of the share of the Danube Region in world exports in Figure 21 yields one striking result: over the past five years, the weight of the Danube Region in world exports of goods and services has declined continuously. Its share in total world exports has dropped from its level in 2008 by one percentage point to approximately 6.1% in 2012. In this respect, the Danube Re-

gion falls further behind the respective shares of the EU-27 or the NAFTA. For example, in 2012, the world export shares of the EU-27 and the NAFTA were 32.9% and 13.8%, respectively.

Figure 21: World Export Market Shares of the Danube Region



Notes: For Baden-Wuerttemberg and Bayern, only data for goods exports are available. Therefore, the world export share for services of these two regions is approximated. The approximation method tends to overestimate the world export share for services.
Source: UNCTAD. Calculation and illustration: IAW.

We also observe a persistent structural pattern in exports from the Danube Region, which captures a larger share of world trade in commodities than in services. For example, the Danube Region accounted for 6.4% of total world exports of commodities in 2012, whereas its share in world services exports was only 5.7%. In contrast, the shares in world exports of services of the EU-27 and the NAFTA exceed their shares in goods trade (Annex Figure 139 and Figure 140).

Next, we focus on the different subgroups within the Danube Region. The Member States Area 1, formed by Austria, Baden-Wuerttemberg and Bayern, exhibits the highest export share in the Danube Region, which amounts to approximately 3.2% of world exports of goods and services in 2012. However,

it is also the region that suffers the greatest drop in its share over the period 2008-2012.

The rest of the groups Member States Areas 2 and 3, Accession Countries and Neighbouring Countries have shares in world exports of goods and services in 2012 of approximately 2.0%, 0.5%, 0.4%, and 0.1%, respectively. For these regions, the world export shares remain approximately constant over the analysed period.

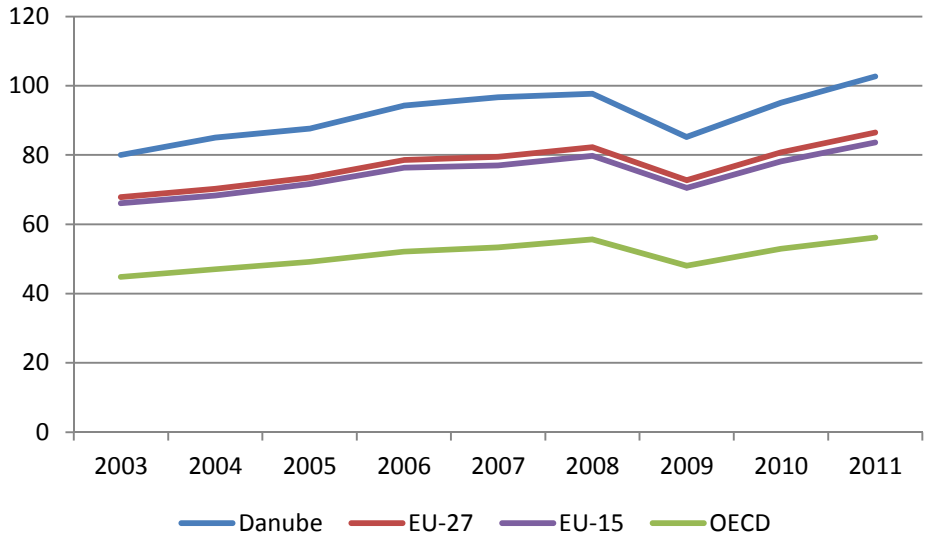
We next compare goods and services exports for each of the subgroups. On the one hand, the Member States Area 1 and Member States Area 2 have a higher share in world exports of goods than for services trade. On the other hand, the Member States Area 3, Accession Countries, and Neighbouring Countries export relatively more services than goods compared to the rest of the world (Annex Figure 141 and Figure 142).

Figure 22 shows that trade intensity, measured as the sum of imports and exports over GDP, is higher in the Danube Region than in the EU-27 and the OECD average. This implies that on average the Danube Region is more engaged in international trade than the OECD and EU-27 countries. In 2011, trade volume (imports + exports) in the Danube Region was approximately 101% of GDP, while for the EU-27 and the OECD, trade volumes in the same year reached only 87% and 58% of GDP, respectively. It is important to note that part of this difference in trade intensities can be explained by the fact that the single countries of the Danube Region are smaller in terms of GDP, and therefore inherently more open to international trade, than those that are composing the EU-27 and the OECD.

Regarding the development of trade intensities over the depicted period, an important observation can be made: all three regions, i.e. the Danube Region, the EU-27, and the OECD show a parallel development of trade intensities from 2003 to 2011. Overall, trade volumes show an increasing trend over the entire period, which is only interrupted by the crisis in 2009.

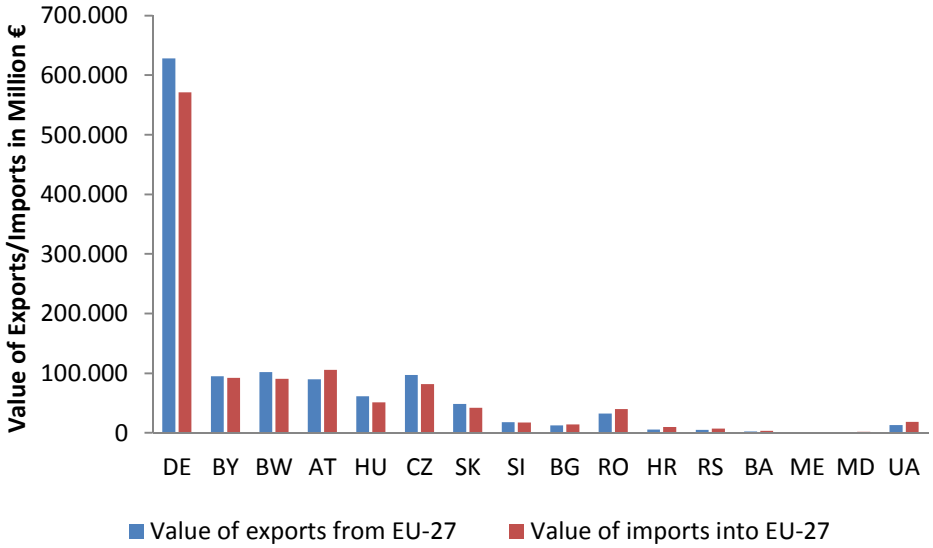
Regarding the subgroups within the Danube Region, it is worth mentioning that trade intensity in the Member States Area 2, formed by Czech Republic, Hungary, Slovenia, and Slovakia, lies well above the other groups (Annex Figure 143).

Figure 22: Trade Intensity 2003-2011 (in % of GDP)



Source: UNCTAD. Calculation and illustration: IAW.

Figure 23: Trade with EU-27 2011 (in Mill. €)



Notes: For Bavaria and Baden-Wuerttemberg the value of exports and imports for goods is used. The import values for the two regions are not complete because of measurement errors concerning the assignment of imports to the different regions.

Source: Eurostat For Bavaria and Baden-Wuerttemberg: Statistisches Bundesamt. Calculation and Illustration: IAW

Trade with the EU-27 in the year 2011 is shown in Figure 23 and varies strongly between the 14 countries of the Danube Region. It can be demonstrated that Bavaria, Baden-Wuerttemberg, and the Czech Republic have the highest value of exports with the EU-27, followed by Austria, Hungary, and Romania. In contrast, Austria is the biggest importer followed by Bavaria, Baden-Wuerttemberg, the Czech Republic, and Hungary. Only five out of 14 regions within the Danube Region have a positive trade balance, while the other nine countries import more than they export. It is also clear that Germany as a whole dominates the rest of the Danube countries in terms of trade intensities.

Finally, we examine the intensity of trade in the Danube Region with the EU-27. The EU-27-share of total trade (exports and imports) for all the Danube countries can be described as follows[12]: The Czech Republic and Slovakia trade most intensively with the EU-27, which receives more than 80% of its exports, followed by Hungary, Romania, and Slovenia. On the lower end, Ukraine ships only 26% of its exports to this region. Looking at the imports, we see that Austria, the Czech Republic, Slovakia, and Romania import the highest shares (around 70% of their imports) from the EU-27. Ukraine again features the lowest value with only 31%. The comparably low values for Ukraine are not very surprising due to its geographic location and intensive economic relation with Russia.

The development of imports and exports with the EU-27 was very heterogeneous between different countries. While the share of trade with the EU-27 members has decreased in Austria and Germany, it stayed relatively constant in Slovenia. One final observation concerns the reduction of trade shares with the EU-27 for most countries in the Danube area that are not members of the Eurozone, like Ukraine or Hungary. The strong performance of the Euro as a currency in the last years may have contributed to this decline.

[12] For detailed information see Annex Figure 144.

3.2 Indicators of Competitiveness

3.2.1 Investment Climate

If we want to assess the long run economic development of a region, the investment climate is a very important indicator to consider. Information on this can be found in the 'Global Competitiveness Report 2013', which is a comprehensive survey of 13,000 business leaders in 148 countries published each year by the World Economic Forum. They use several indicators that are combined with other characteristics to yield a general competitiveness index. In the following, we want to present selected indicators that inform about crucial determinants for the investment climate of the Danube Region.

Based on the results of that survey (and in comparison to a previous survey from the years 2007/08), Table 4 shows the ranks of the subgroups of the Danube Region with respect to a selection of the competitiveness indicators included in the report.[13] Ranks are arranged in ascending order, that is, the region which is awarded position 1 is the best performing one with respect to the analysed indicator. The selected competitiveness indicators are defined as following:

- **Domestic market size.** Sum of gross domestic product plus value of imports of goods and services, minus value of exports of goods and services, normalized on a 1–7 scale
- **Cost of crime and violence.** In your country, to what extent does the

INFO BOX: Methodological explanation

Most questions in the survey ask respondents to evaluate on a scale of 1 to 7 with 1 being the worst possible situation and 7 representing the best. Partner Institutes are asked to follow detailed sampling guidelines to ensure that the samples are as representative and comparable as possible. The sampling guidelines are based on best practices in the field of survey administration and on discussion with survey experts.[1]

[13] For the ranks of the individual countries see Table 19 in the Annex.

incidence of crime and violence impose costs on businesses? [1 = to a great extent; 7 = not at all]

- **Burden of government regulation.** In your country, how burdensome is it for businesses to comply with governmental administrative requirements (e.g., permits, regulations, reporting)? [1 = extremely burdensome; 7 = not burdensome at all]
- **Protection of property rights.** In your country, how strong is the protection of property rights, including financial assets? [1 = extremely weak; 7 = extremely strong]

Table 4: **Global Competitiveness Report Rank, selected variables 2013-2014**

Indicator/Area	Member States Area 1	Member States Area 2	Member States Area 3	Acc. Countries	Neighb. Countries
Global Competitiveness index	8	62 (-)	69 (+)	85 (+)	87 (+)
Domestic Market Size	16 (+)	63 (-)	61 (-)	100 (-)	81 (-)
Cost of Crime & Violence	21 (-)	50 (-)	66 (+)	48 (+)	56 (-)
Burden of goverm. Regulation	67 (-)	138 (-)	125 (-)	87	130 (-)
Protection of property rights	14 (-)	86 (-)	96 (-)	103 (-)	137 (-)
Prot. of intellectual property rights	15 (-)	57 (-)	98 (-)	109 (+)	129 (-)
Trade tariffs, % duty	4 (+)	4 (+)	16 (+)	60,7	47.5
Trade barriers	47 (-)	39 (-)	103 (-)	99 (-)	91 (+)
Flexibility of wage determination	143 (-)	88 (-)	56 (-)	80 (-)	57 (-)

Notes: Red (-): Decrease in rank since 2007-2008, Green (+): Improvement of Rank since 2007-2008 Ranks are arranged in an ascending order. Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.

Source: Global competitiveness Report 2013, Calculation and illustration: IAW.

- **Protection of intellectual property rights.** In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures? [1 = extremely weak; 7 = extremely strong]
- **Trade tariffs, % duty.** Trade-weighted average tariff rate
- **Trade barriers.** In your country, to what extent do non-tariff barriers (e.g., health and product standards, technical and labeling requirements, etc.) limit the ability of imported goods to compete in the domestic market? [1 = strongly limit; 7 = do not limit at all]
- **Flexibility of wage determination.** In your country, how are wages generally set? [1 = by a centralized bargaining process; 7 = by each individual company]

Finally, the indicator "Global competitiveness index" aggregates the results of all competitiveness indicators taken into account in the survey.

- The **Global Competitiveness Index** (GCI) is a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness. Competitiveness is defined as a set of institutions, factors and policies that determine the level of productivity of a country taking into account its level of development.

If we want to compare the EU Member States within the Danube Region with other countries or other economic areas, we have to consider their change in rank compared to the survey in 2007.

In Table 4 we can see that they have become less competitive/investor friendly. Specifically, they lost ground in the areas 'Burden of government regulation', 'Protection of property rights' (including intellectual property rights), 'Flexibility of wage determination' and 'Trade barriers'. Only concerning 'Trade tariffs duty', the situation clearly improved. For all these indicators, the three Member State subgroups moved in the same direction. Combining all indicators, the WEF calculates the 'Global Competitiveness Index', which shows a mixed picture for the different Member States Areas. Whereas the countries of Member States Area 3 could improve their rank and the countries of Member States Area kept their past position, the countries of Member States Area 2 decreased in rank. This also applies to the two indicators "Domestic Market Size" and "Cost of Crime and Violence".

INFO BOX: Methodological explanation

The Global Competiveness Index certainly is an important indicator for the development of competiveness in an economy, but it should not be overestimated as the index is based on the subjective opinion of experts. As there is no clear consensus about the roots of growth in the economic theory, the choice of these criteria is linked to some specific visions and opinions of its author than to a solid scientific approach. Composite indexes are sometimes based on unreliable statistical methods and on the principle of aggregation which always generalises.

For composite indeces it is often the case that the the criteria used in the surveys are changed. This is understandable as they try to follow the latest developments in economic theory or management research. But it means that there is no continuity in the statistical series they use and that it is therefore risky to use their yearly ratings as strong benchmarks.[14]

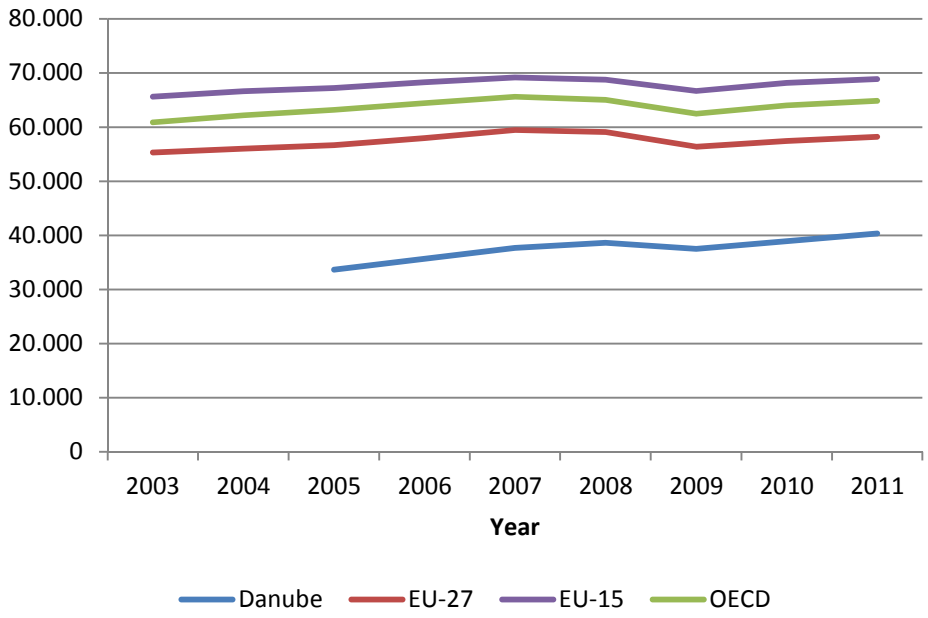
3.2.2 Labour productivity

If we want to assess the economic performance of a region, we commonly use labour productivity as a main indicator, which depends among other factors on its physical capital stock. As physical capital formation is determined by firms' investment activities, a country's investment climate also indirectly influences labour productivity.

Labour productivity can be measured as value added per employee. Figure 26 shows labour productivity calculated as real GDP, PPP adjusted per person engaged in the Danube Region compared with OECD, EU-15 and EU-27. The Danube Region lies well below the EU-15, OECD and the EU-27 level. For EU-15, OECD and EU-27 the labour productivity shows a co-movement with a relatively constant productivity difference between these country groups. Moreover, before and after the economic crisis the productivity of the Danube Region displays a slightly steeper slope than the other three aggregates.

[14] Walter "Draft: Competiveness - a general approach"

Figure 24: Labour productivity (GDP (in 2005€) per person employed)



Source: Penn World Tables, OECD, Arbeitskreis VGL..
The Benchmark for the Danube area could not be calculated due to the missing data for years 2010 and 2011 for Bavaria and Baden-Wuerttemberg and missing data for Montenegro for 2003 and 2004. Calculation and illustration: IAW

This outcome can also be observed when taking a closer look at labour productivity growth. It turns out that before the crisis labour productivity growth rates in the Danube indeed were up to 6 percentage points higher in the Danube Region than in the benchmark regions (Annex Figure 145). Even though labour productivity growth rates in the Danube Region also turned negative during the crisis as in the benchmark regions, they increased much stronger after the crisis.

Within the Danube Region, Member States Area 1 has unambiguously the highest level of GDP per person employed, at around 70,000 US$ (PPP), although the level diminished during the economic crisis (Annex Figure 146). The labour productivity of Member States Area 2 also displays a rising trend, which might be connected with the countries' accession to the EU in 2004. It moved from around 40,000 US $ (2005, PPP) in 2003 to nearly 50*,000* US $ (2005, PPP) in 2011.

Member States Area 3 and the Accession Countries have nearly identical levels and movements, while we can see that the Member States Area 3 has overtaken the Accession Countries by some small degree in 2007 (year of EU Accession). The Neighbouring Countries have the lowest labour productivity. However, it has been rising significantly from around 10,000 US$, (2003, PPP) to nearly 17,000 US$(2011, PPP).

For the Member States of the Danube Region we can not only consider the labour productivity based on persons employed, but also the labour productivity defined as output per hour worked. But then we get the same ranking between the subgroups of the Danube Region as in the case before (Annex Figure 147).

3.2.3 Unit Labour Costs

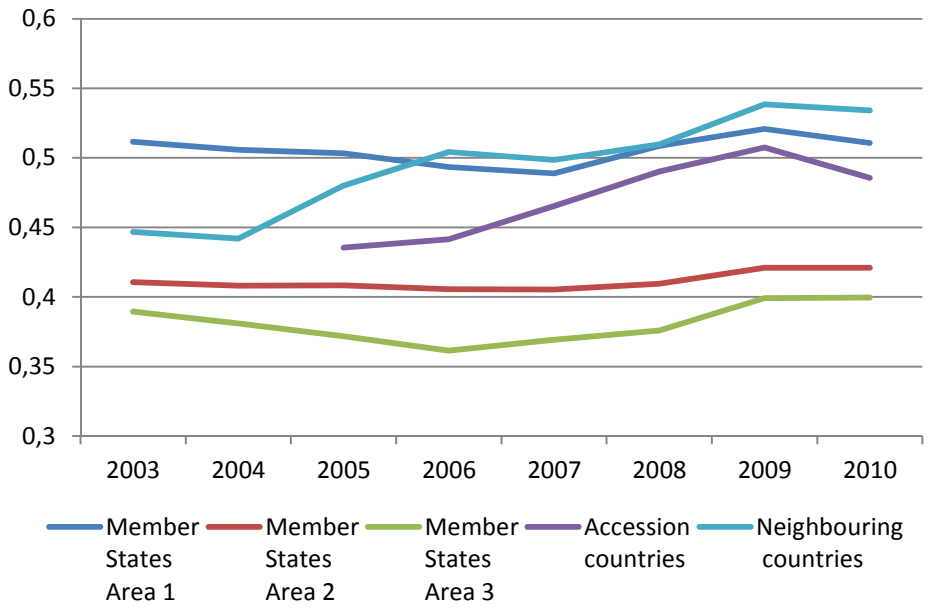
A main indicator of competitiveness is unit labour costs. They are defined as the labour costs per unit of value added, which equals average gross wage divided by average productivity. This yields the value GDP per person employed. So unit labour costs depend directly on labour productivity, which was discussed in the previous paragraph.

Labour costs usually differ greatly in international comparison due to low mobility of workers and also due to the different burdens imposed by taxes and (social) contributions. This does not apply to factor costs for capital.

If we analyse competitiveness, we are interested in costs that differ from one country to another. Therefore, in the following we only look at labour costs.

In Figure 27 we can see that by now, the Neighbouring Countries have reached higher unit labour costs than Member States Area_1, which makes them the less competitive (ignoring exchange rate developments). In all regions unit labour costs increased during the economic crisis in 2009, probably caused by temporarily lower labour producitivity and not by rising wages. But the Acession Countries also have relatively high unit labour costs. In contrast, Member States Area_2 and especially Member States Area_3 have the lowest level, which (all other things equal) gives them a competitive edge over all other regions considered.

Figure 25: Unit labour cost, current national currency[15]



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: OECD, UNECE, VGRDL, Eurostat, Penn World Table. Illustration and calculations: IAW

[15] Country Specific Notes: B**osnia and Herzegovina**, The wages include remuneration in cash only, not in kind, and the total wages are divided by the number of all employees including both full-time and part-time workers.

Croatia, the total wages are divided by the number of all employees including both full-time and part-time workers. Free lancers and craft workers are not included. 1994 denomination of the Croat dinar: 1 new Croatian Kuna = 1000 dinars.

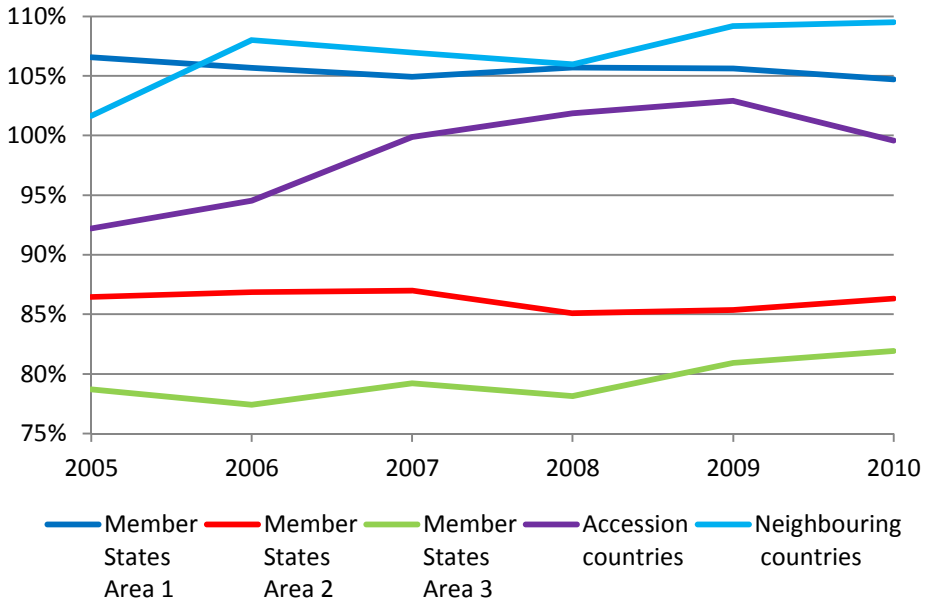
Moldova, Republic of, the total wages are divided by the number of all employees including both full-time and part-time workers. 1993 denomination of the coupon: 1 new leu = 1000 old coupon.

Montenegro, the total wages are divided by the number of all employees including both full-time and part-time workers.

Serbia, the total wages are divided by the number of all employees including both full-time and part-time workers. Wages in services provided by households are not included, covers economic activities A-O (ISIC Rev.3).

In Figure 26 the unit labour costs of the subgroups relative to the level of the Danube Region (Index=100) are depicted. We see that the Neighbouring Countries and the countries of Member States Area 1 have higher unit labour costs than the Danube Region as a whole. Even though the Acession Countries temporarily had higher levels than the Danube Region, its unit labour costs decreased again toward the end of the considered period (2010). The countries of Member States Area 2 and 3 are clealy more competitive, given that their unit labour costs lie well below the 100% line.

Figure 26: Unit labour cost, Index (Danube=100%)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: OECD, UNECE, VGRDL, Eurostat, Penn World Table. Illustration and calculations: IAW

3.3 Labour market and migration[16]

3.3.1 Population by age groups

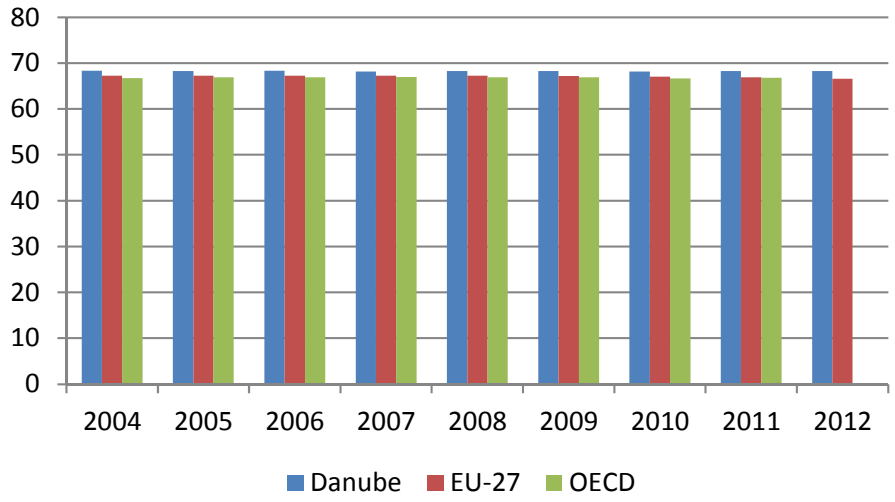
Population ageing has become a common feature that started several decades ago in the EU countries, the Danube Region and the OECD countries as well. Ageing is reflected in the development of the age structure of the population and visible in a rising proportion of older persons and a declining proportion of both the young and – in most countries – in the working age population in the total population. Ageing of the population is expected to accelerate in the coming decades in the EU-27 and probably so in the OECD area and the Danube Region, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, pose a serious risk on the welfare system of these countries.

As illustrated in Figure 27 the prime-age population (15-64 years) remained almost unchanged over recent years in the Danube Region and was higher than in the EU-27 and in the OECD countries. By contrast, in the two latter regions the working age population shrank continuously in the 2004-2012 period. The share of young people between 0 and 14 years has been steadily on the decline both in the EU-27 and in the Danube Region in the period 2004-2012 and represented only 15.6% and 14.2% of the total population (Annex Figure 148). There are, however, huge variations among regions and individual countries.

The EU-27, the Danube Region and probably the OECD countries as well are facing ageing populations. Population ageing has been slightly more advanced in the Danube Region than in the EU-27 up to the year 2010 when this trend reversed (Annex Figure 149). However in both groups of countries the share of the population above 65 years increased by 1.3 percentage points between 2004 and 2012.

[16] Prior to 2008 labour market data on the Danube region have to be treated with caution due to different methodologies used in data collection in Serbia and Montenegro compared to other countries of the region.

Figure 27: Population 15-64 years (in % of total population)



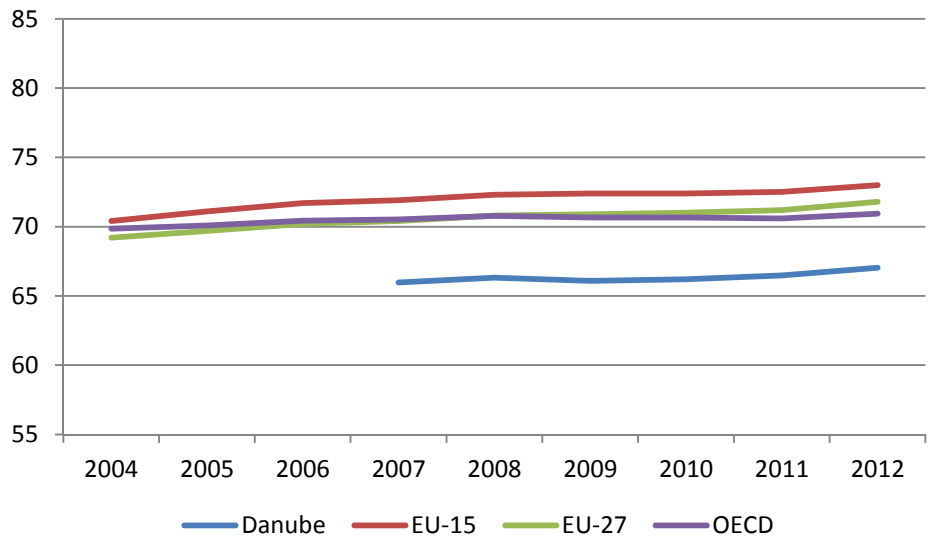
Source: Eurostat, OECD. Calculation and illustration: wiiw.

3.3.2 Activity rates

As illustrated in Figure 28 overall activity rates in the Danube Region have been traditionally lower (at about 67%) than either in the OECD or the EU-27 and EU-15 countries (over 70%). In general, participation rates were more resilient than expected on the basis of historical regularities in the aftermath of the recession.[17] The gap between activity rates of the Danube Region and the three groups of benchmark countries remained almost unchanged in the period 2007-2012, ranging between 5 and 7 percentage points if compared to EU-27 and OECD respectively.

[17] European Commission (2012), Labour market developments in Europe 2012, European Economy 5/2012, p. 21.

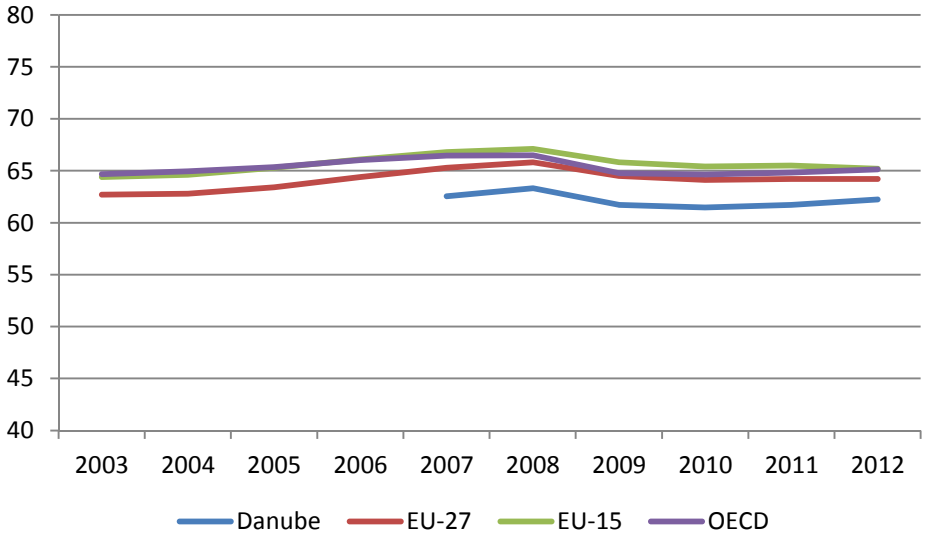
Figure 28: Activity rates 2004-2012 (in % of total population)



Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

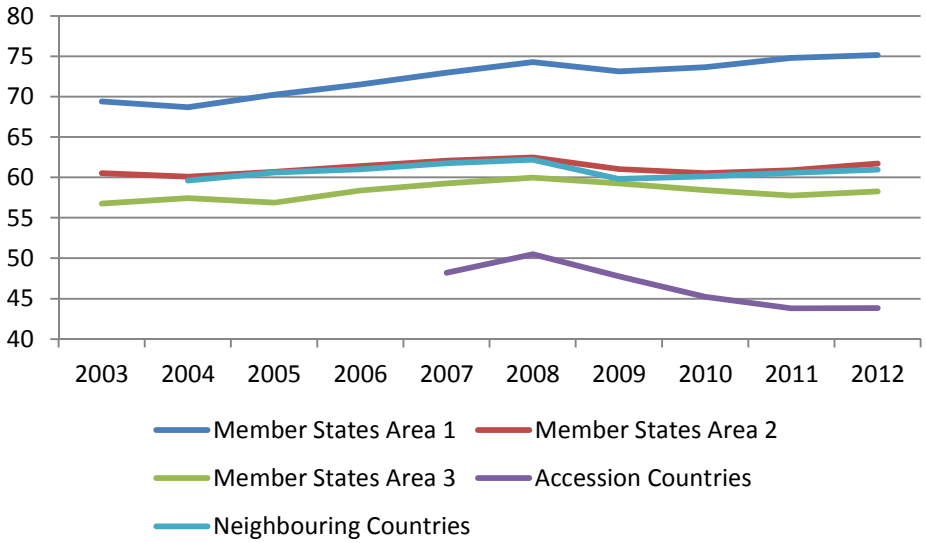
With respect to gender, activity rates differed across all regions (Annex Figure 150). During the period 2006-2012 male rates have been very similar in the OECD and EU countries reaching 80% and 78% respectively. At the same time male participation rates in the Danube Region have only slightly surpassed the 70% mark. Concerning females, the highest and most growing female activity rates were reported in the EU-15 and EU-27 accounting for 66-67%. Similarly in the OECD activity of females was on the increase but remained below EU levels during the whole period (in 2012 the gap vis-a-vis the EU-15 was almost 5 percentage points). By contrast, in the Danube Region the participation of females on the labour market was growing less dynamically, hovering around 60% between 2006 and 2012.

Figure 29: Employment rates (employed persons in % of the working age population (15-64 years))



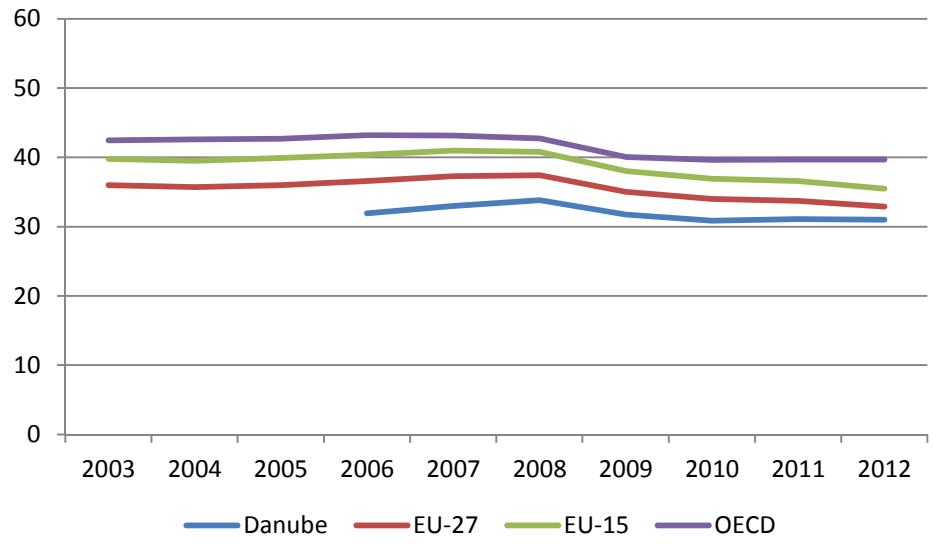
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Figure 30: Employment rates (employed persons in % of the working age population (15-64 years)), by subgroups of the Danube Region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Figure 31: Youth employment rates (15-24 years, in %)



Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

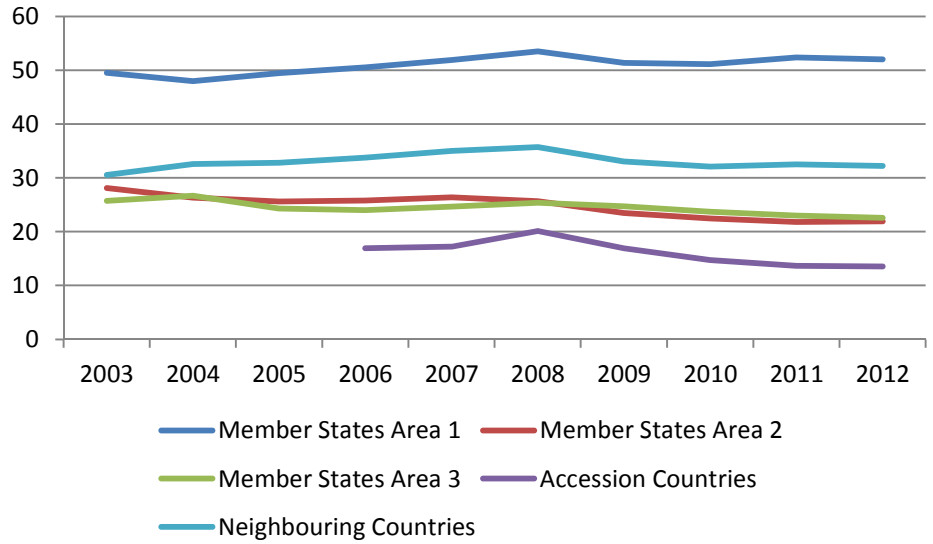
As indicated in Figure 29, employment rates – defined as the share of employment in the working age population (15-64 years) – increased up to 2008 in all major regions, the trend reversed with the crisis. Employment rates in the OECD exceeded the EU-27 average over the whole period under consideration, but fell below EU-15 from 2005 onwards. The employment rate of the Danube Region has been traditionally lower than both the EU and OECD averages. However, there are strong variations among the Danube Region subgroups as shown in Figure 30. Employment rates are remarkably lower in the Accession Countries than in the Danube Region on average and differ even more strongly if compared with the group of the best performers (Member States Area 1), with the gap continuously widening over the past decade.

As depicted in Figure 31 the employment rates of young people (15-24 years) show remarkable variations. In the entire period under consideration youth employment rates were the highest in the OECD area and lowest in the Danube Region, with an almost constant gap of close to 9 percentage points between the two. In the period 2008-2012 youth employment rates decreased in all four regions, of which most pronouncedly in the EU-15 - by 6.4 percentage points. Within the Danube Region sub-groups youth employment rates fell

most significantly in the Accession Countries (by 7 percentage points) and in the Member states 2 (by 4.8 pp).

Differences in youth employment rates are even greater if comparing the sub-regions of the Danube Region. As illustrated in Figure 32 the gap between the lowest youth employment rate reported for Accession Countries and the highest in the countries of Member States Area accounted for 38 percentage points in 2012 (52% versus 13.6%).

Figure 32: Youth employment rates (15-24 years, in %), by subgroups of the Danube Region

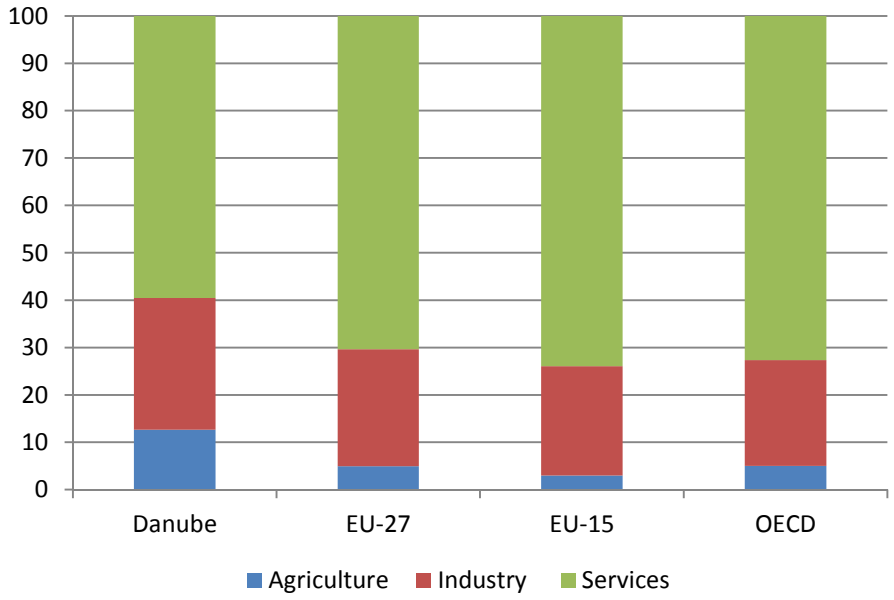


Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Figure 33 shows the sectoral distribution of employment by main economic activities – agriculture, industry and services. In all four regional groups services sector employment plays the dominant role, reaching 70% of total employment in EU-27 and exceeding that mark by 3-4 percentage points in EU-15 and OECD. In 2012 services sector employment in the Danube Region was far below these levels accounting for slightly less than 60% of total employment. Here agriculture is still an important employer, absorbing close to 13% of the total workforce, while the respective shares in EU-27 and OECD stood at 5%; in

the EU-15 at only 3%. Also industrial employment is more pronounced in the Danube Region than in the three other regions.

Figure 33: Employment 2012, by main economic sectors (in %)

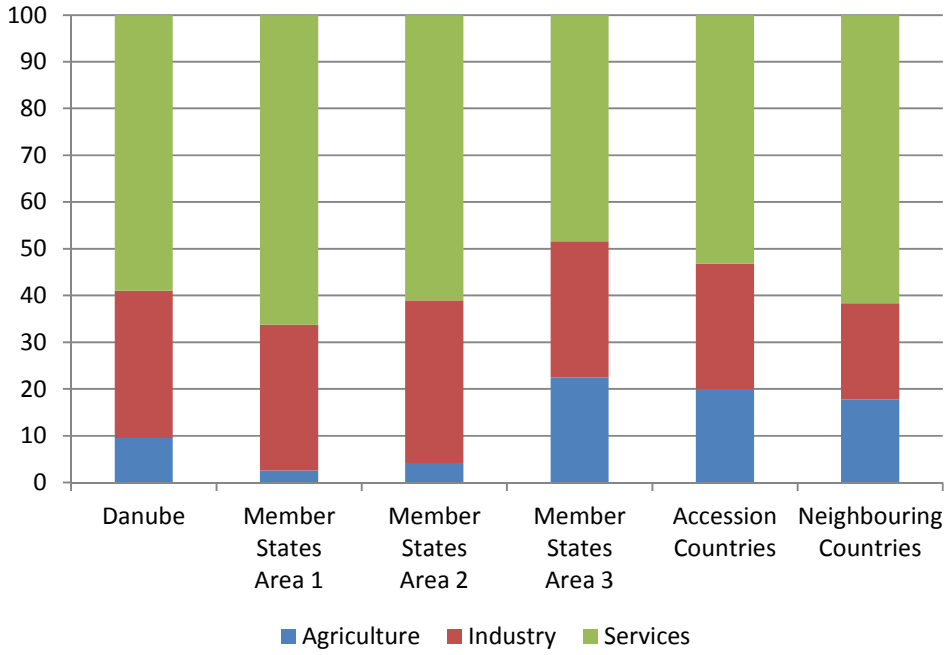


Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Figure 34 presents the employment shares by main economic sectors in the Danube Region sub-groups. In 2012 the countries of Member States Area 1 had the lowest share of agricultural employment (2.6%) among the Danube countries, while it accounted for 22.5% in the countries of Member States Area 3 mainly as a result of the still high proportion of agriculture in Romania. Also in the Accession and Neighbouring Countries 18-19% of the workforce is employed in agriculture. The services sector absorbs two thirds of total employment in the countries of Member States Area 1, but only 48% in the countries of Member States Area 3 and 53% in the Accession Countries.

Industrial employment exhibits a higher share in total employment in the EU member states belonging to the Danube Region, above all in the countries of Member States Area 2. Conversely, in the Accession Countries and particularly in the Neighbouring Countries, industry accounts for 27% and 21% of total employment respectively.

Figure 34: Employment 2012, by main economic sectors and subregions of the Danube Region (in %)



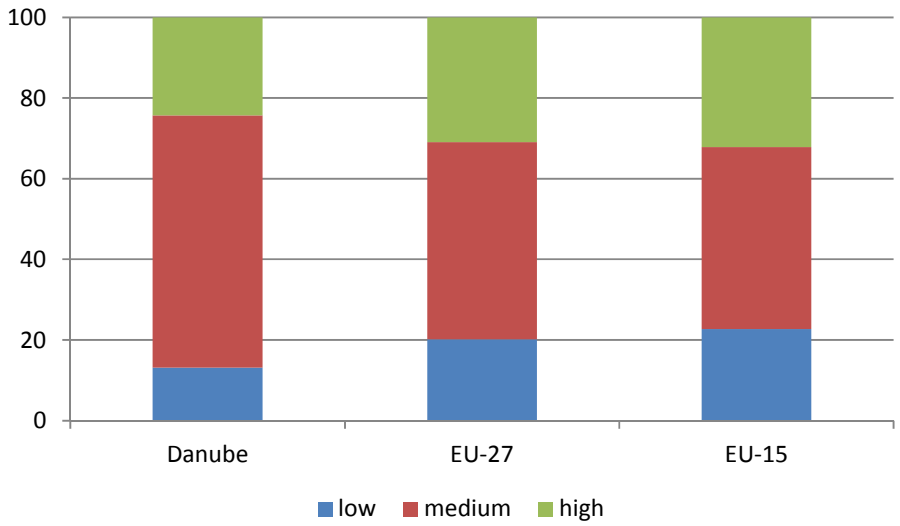
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

In the past couple of years the share of agricultural employment decreased in all major country groups, of which most pronouncedly in the Danube Region (in particular in the Accession Countries). The industrial employment share has been declined as well with the strongest contractions in the EU-15 and EU-27. Within the Danube Region, industrial employment shares fell the most in the Accession Countries and the countries of Member States Area 2. By contrast, services sector employment gained importance in all groups of countries with highest increases in the Danube Region, of which particularly in the Neighbouring Countries and in the countries of Member States Area 3 (for further details on the sectoral shift from agriculture and industry towards the services sector see Chapter on GDP components and sectors above).

Moving on to the patterns of educational qualification of the employed we can see from Figure 35, that the Danube Region has a significantly lower share of low educated (people with less than completed secondary degree attainment

levels) than either the EU-15 or the EU-27 (data for the OECD countries are not available). Only 13% of the employed in the Danube Region belong to this group and 20% in the EU-27 and 23% in the EU-15. Over the period 2004 to 2012, the share of the low educated has been falling in all economies under consideration.

Figure 35: Employment 2012 (15-64 years), by educational attainment (in %)

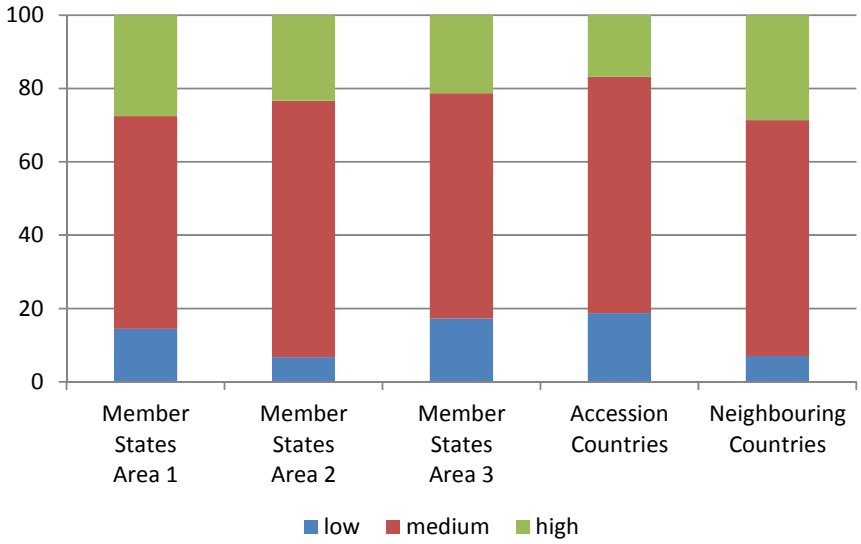


Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

On the other hand the shares of the highly educated (employed with completed tertiary educational attainment level) are also lower in the Danube Region than either in the EU-15 or in the EU-27, by about 7-8 percentage points. Hence, compared with the EU-15 and EU-27 economies, the Danube Region has a very strong representation of the medium educated skill groups (group with some secondary completed educational attainment level) in which we find over 60% of the employed, as against just 49% in the EU-27 and 45% in the EU-15. The share of this group has been slightly increasing in the Danube Region and EU-15, while it is stagnant in EU-27. As shown in Figure 36 there are significant differences in the educational attainment levels of the employed in the Danube Region subgroups. With the exception of the Member States Area 1 the share of the medium educated in total employment is exceeding the 60% mark in all other subregions of the Danube Region and reaches even 70% in the countries of Member States Area 2. In the latter, to-

gether with the Accession Countries, also the share of the low educated is lowest. The Neighbouring countries exhibit the highest shares of highly educated in the Danube Region.

Figure 36: Employment 2012 (15-64 years), by educational attainment and subregions of the Danube Region (in %)

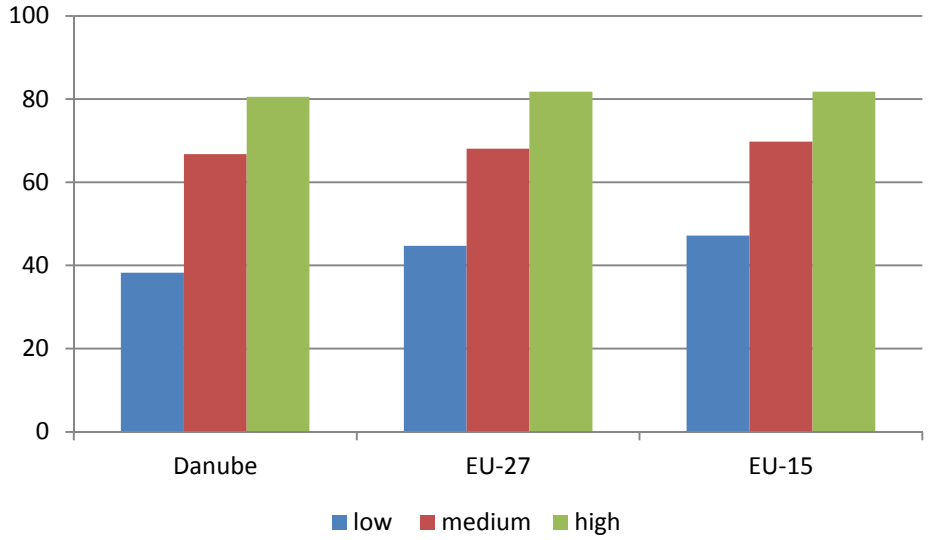


Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

If looking at employment rates we see an increase with the level of education, however to different extent in the individual regions. When it comes to tertiary education (high skilled) employment rates are highest in the EU-27 and EU-15, showing an almost identical picture in both groups of countries and only slightly lower rates in the Danube Region with over 80% on average. Differences as compared with the EU-15 and EU-27 occur particularly in the lowest educational group, with the employment rates being constantly below 40%. As shown in Figure 37, in 2012 the gaps in the employment rates of the low skilled between the Danube Region and the EU-15 and EU-27 accounted for 9pp and 6.6pp respectively. The employment rate of the medium-educated (about 66% on average in the Danube Region) is below the EU-15 and EU-27 levels, but the disparities narrowed since the outbreak of the crisis. Again, as illustrated in Figure 38 there are large differences between the subregions of

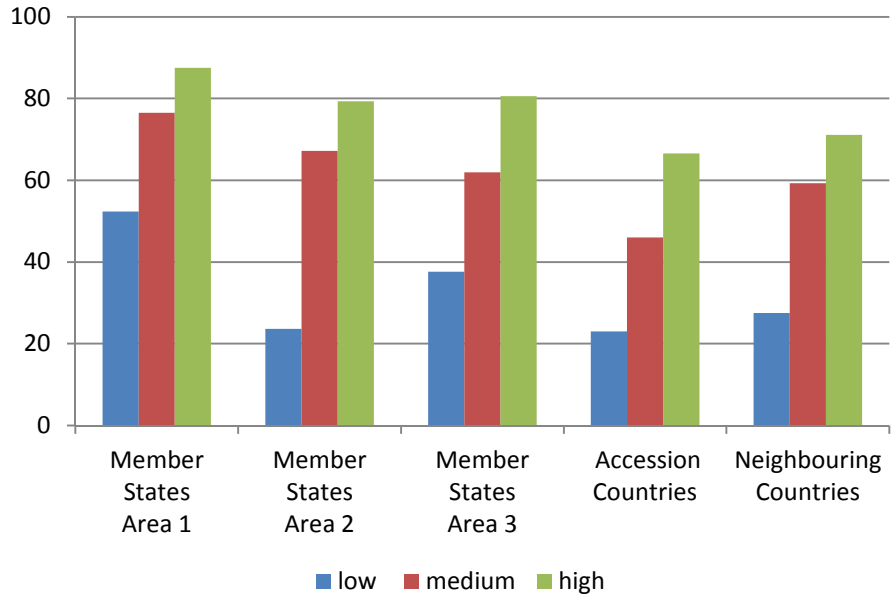
the Danube Region with respect to the educational attainment of the work-force.

Figure 37: Employment rates 2012, by educational attainment (in %)



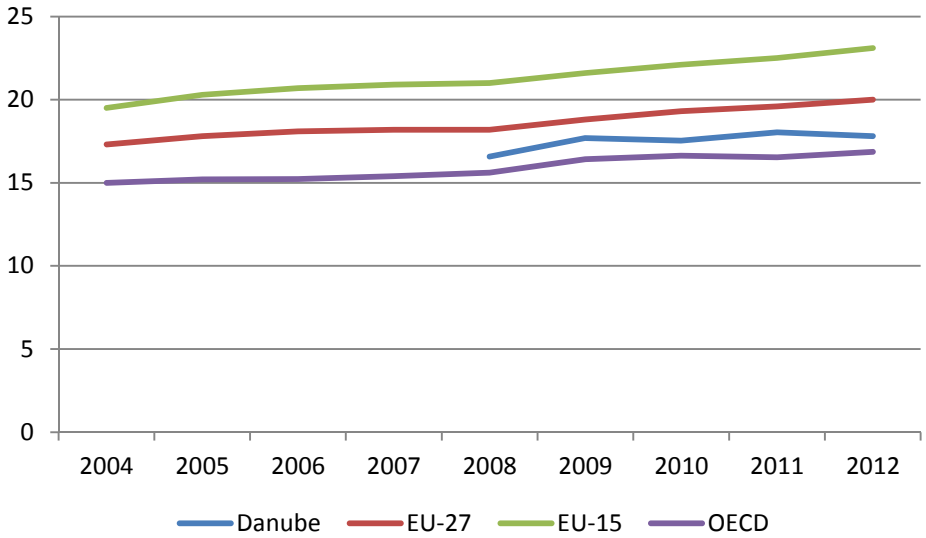
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Figure 38: Employment rates 2012, by educational attainment and subregions of the Danube Region (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

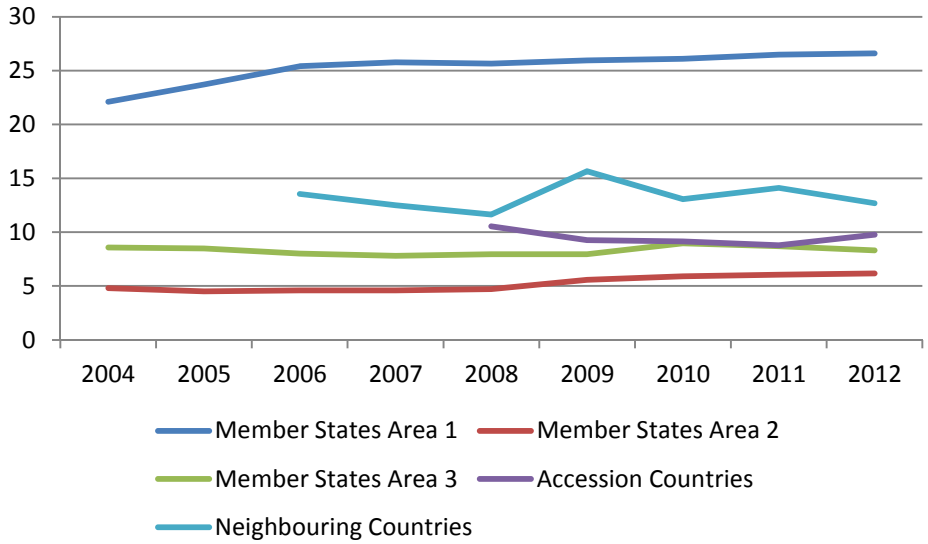
Figure 39: Part-time employment (in % of total employment)



Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Non-standard forms of employment (part-time, temporary work, self-employment) have been increasingly used in the EU-15 since the early 1990s. As illustrated in Figure 39 part time employment accounted for 23% of total employment in 2012, in the EU-27 the respective share was 20% and in the OECD area 17%.

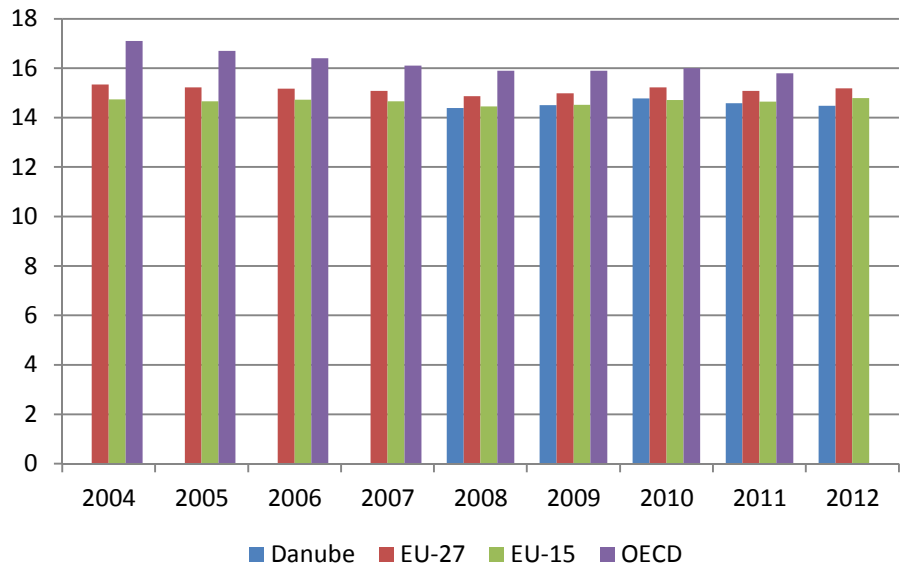
Figure 40: Part time employment, by subgroups of the Danube Region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Data available for the Danube Region (Member countries) show huge variations among the sub-groups. As shown in Figure 40 part-time employment is most pronounced in the countries of Member States Area 1 accounting for 27% of total employment in 2012, while only for 6% in the countries of Member States 2 and for 8% in the Member States Area 3.

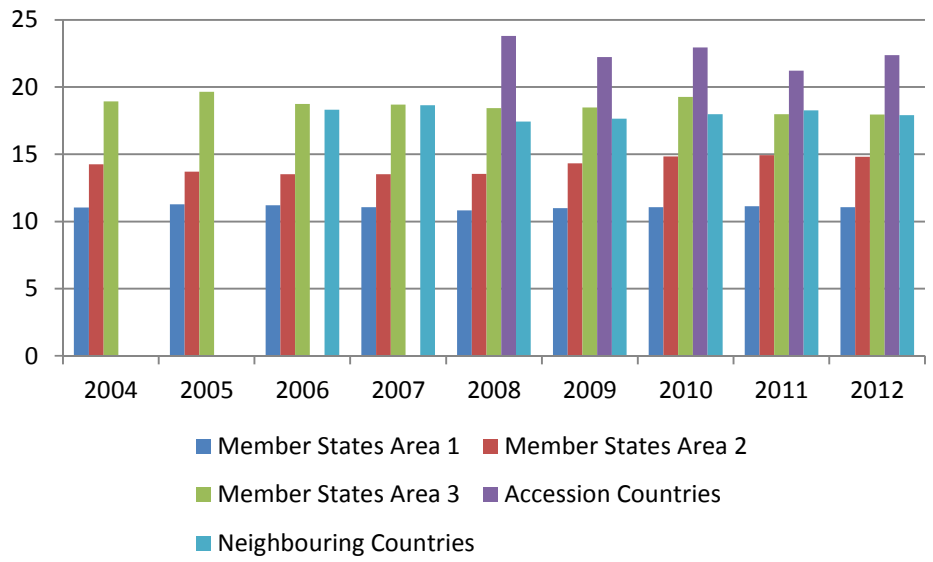
Figure 41: Self-employment rates 2004-2012 (in % of total employment)



Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Self-employment often used as a proxy for informal sector employment has been highest in the OECD countries in the period between 2004 and 2012. As depicted in Figure 44 its share in total employment accounted for about 16%. In the Danube region self-employment was slightly below the level reported for the EU-27 and EU-15 averages (15%).

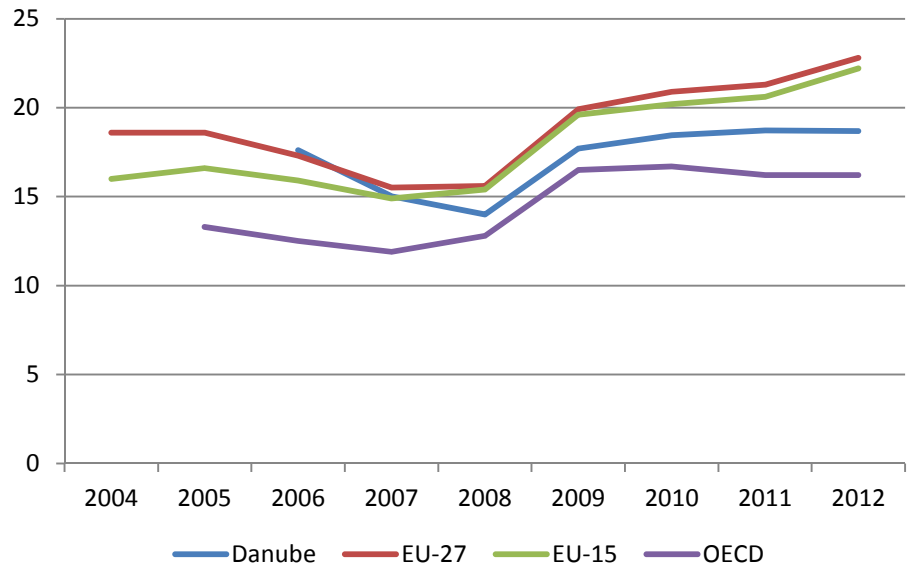
Figure 42: Self- employment rates 2004-2012 (in % of total employment), by subgroups of the Danube Region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

There are, however, significant differences within the Danube region: as shown in Figure 45 self-employment is exceptionally high (but slightly declining) in the Accession Countries (22% of total employment) and a little lower in the Member states 3 and in the Accession Countries (18% each). In these three groups of countries agriculture is an important economic activity for self-employed.

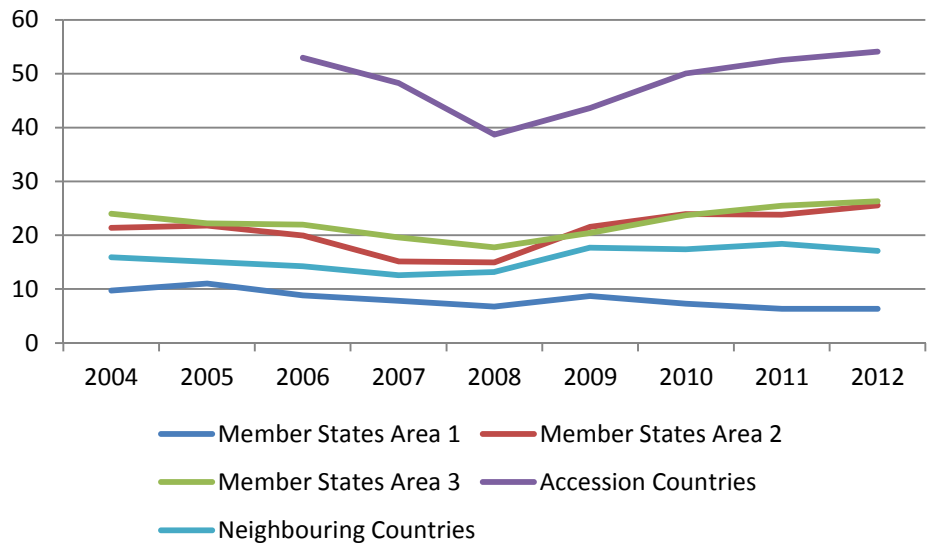
Figure 43: Youth unemployment rates (15-24 years, in %)



Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

As illustrated in Figure 46 youth unemployment in the Danube region – defined as the share of unemployed aged 15-24 years in the respective labour force - declined similar to other main regions prior to the economic and financial crisis and jumped from 14% in 2008 to 18.7% in 2012. This was less severe than in the EU-27 and EU-15, but stronger than in the OECD.

Figure 44: Youth unemployment rates (15-24 years, in %), by subregions of the Danube Region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD and national statistics. Calculation and illustration: wiiw.

Looking at the Danube region sub-groups we observe, however, strong variations in youth unemployment: as shown in Figure 47 the incidence of youth unemployment has been traditionally much more severe in the Accession Countries than in the Danube region on average and unemployment varies extremely if compared with the best performing Danube region sub-group (Member States Area 1). The gap in youth unemployment between these two sub-groups widened significantly from 32 percentage points in 2008 to 48 percentage points in 2012. In the countries of Member States Area 2 and 3 youth unemployment is slightly exceeding the EU average, while young people in the Accession Countries face unemployment rates below the Danube region average.

3.3.3 Migration and Remittances

International migration has a long tradition in the countries of the Danube Region. In the Accession Countries (then part of the former Yugoslavia) guest worker emigration started already in the 1960s in order to alleviate labour market imbalances and over the past decades also the breakup of Yugoslavia and the subsequent war have led to large migration flows from the region. Bosnia and Herzegovina is the main sending country from this area; half of its migrants have chosen EU countries as their destination, in particular Germany, Austria and Slovenia.18 Migration from the neighbourhood countries which is mainly driven by economic and job related reasons is directed both to the CIS (majority) and to the EU countries. In 2012 about one million migrants from Ukraine lived in the EU (Poland, Italy and Germany) and about 300,000 from Moldova (Italy, Romania, Spain). The inflow to the EU rose significantly from 2003 onwards but dropped remarkably during the crisis. In the countries of Member States Area 3 (Bulgaria and Romania in particular) emigration started after 1989 and intensified in the wake of EU accession due to economic reasons, adding substantially to declining demographics. In 2012, about 2.5 million Romanian and 500,000 Bulgarian citizens resided in the EU and a further increase is expected due to the full liberalization of the EU labour market for citizens from those two countries starting from 2014.[19] Migration plays also an important role for the countries of Member States Area 2(Slovakia and recently also Hungary). In most of these countries migration helped to cushion the problem of unemployment and generate remittances that can be spent on the local economy.

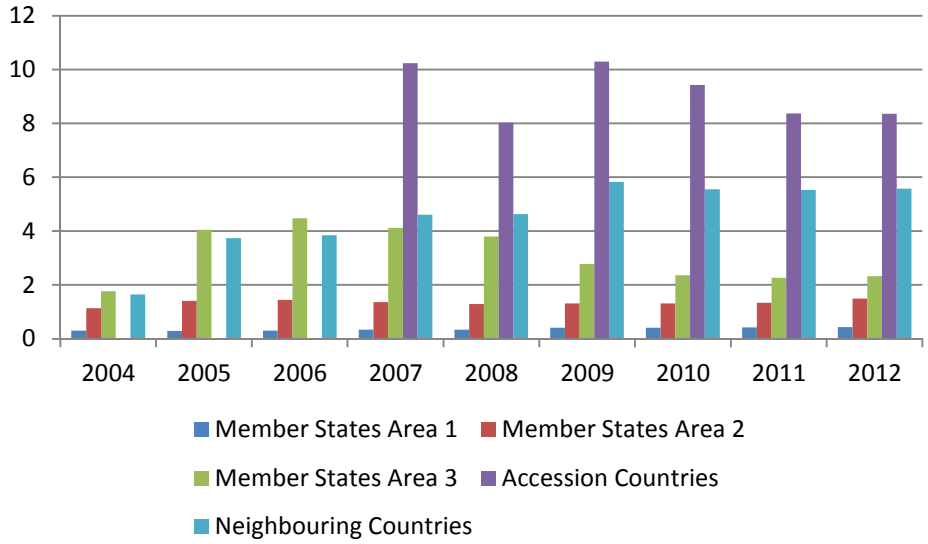
Remittances are an important source of income in a number of countries of the Danube Region. This holds true in particular for the Accession and Neighbouring Countries, and to some extent also for the countries of Member States Area 3. The share of remittances in the GDP varies between 2.1% in

[18] Havlik et al. (2012), European Neighbourhood – Challenges and Opportunities for EU Competitiveness, wiiw Research Report no. 382, p. 112.

[19] Migration from Romania and Bulgaria is mainly directed towards Italy, Spain and Germany.

Romania, 11% in Bosnia and Herzegovina and 24.5% in Moldova.[20] Remittances coupled with increased migration have shown a rising trend over the past decade in these countries, generating welfare gains either for the sending country of the migrants or for the migrants themselves. As shown in Figure 45 the share of remittances in the GDP fell in the wake of the crisis in the Accession Countries from 10% to 8% and in the countries of Member Area 3 from over 4% to 2%. By contrast, in the Neighbouring Countries the remittances' share in the GDP has even increased in 2009 and remained almost stagnant thereafter.

Figure 45: Remittances (in % of GDP)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.

Source: World Bank, Eurostat national statistics and wiiw calculations. Calculation and illustration: wiiw.

[20] In Moldova remittances are among the main contributors to developments on the labour market, because first a high number of emigrants are recorded as inactive in the national statistics and second, because the remittances discourage the recipients from taking low-wage jobs as long as they can rely on financial support from family members working and living abroad (see Mara: in Havlik et al. (2012), European Neighbourhood – Challenges and Opportunities for EU Competitiveness, wiiw Research Reports 382, pp 117.)

The amount of remittances sent to the Accession Countries increased from USD 1.1 billion in 2004 to USD 11.3 billion in 2013. Both Ukraine and Moldova have been characterised by a rise in remittances except for a decline in 2009 due to the financial and economic crisis. Ukraine is the country with the highest inflow of remittances (also in comparison with Accession Countries), amounting to USD 9.3 million in 2013. In the Accession Countries, the volume of remittances rose from USD 5.9 million in 2007 (there are no earlier data available for Serbia and Montenegro) to some USD 5.7 billion in 2013, again showing a temporary decline in 2009. In Bosnia and Herzegovina, the volume of remittances has increased but is still below the level of 2008. In terms of volume Serbia and Bosnia and Herzegovina are the largest receivers in the Accession Countries.

3.3.4 Labour market institutions and labour market policies

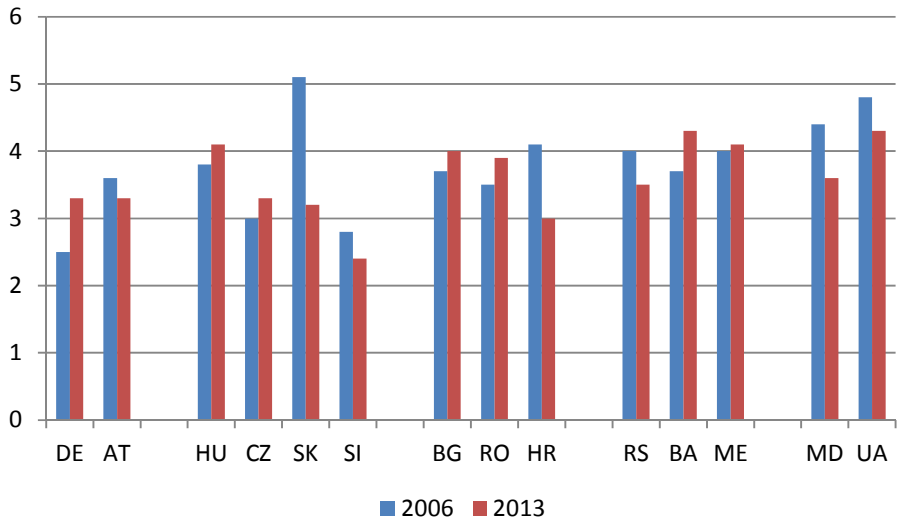
The impact of labour market institutions on labour market results has been subject of vast research over the past decades and there have been very controversial debates among economists on whether or not labour market liberalization (flexibility) leads to higher employment and better overall economic performance. Also, measuring flexibility or rigidity of labour markets has been subject to numerous studies and different outcomes. Thus, results presented below should be taken with caution. Research on labour market institutions is mainly focusing on employment protection legislation (EPL), unionization, wage setting and minimum wages.

In the following, we investigate survey results regarding 'hiring and firing practices', 'cooperation in labour-employer relations' and the 'flexibility of wage determination' obtained from the World Economic Forum (WEF) Reports and compare them where available with the OECD employment protection legislation index (EPL). [21] With respect to hiring and firing practices surveys among

[21] For the purpose of comparison we use data available from the Global Competitiveness Report WEF 2006-2007 and 2012-2013 based on surveys among managers, including all Danube Region countries. The OECD Employment Protection Legislation (EPL), on the other hand, is described along 21 basic items which can be classified in three main areas: (i) protection of regular workers against individual dismissal; (ii) regulation of temporary forms of employment; and (iii) additional, specific requirements for col-

managers in the Danube Region reveal substantial differences across the individual countries. Figure 46 shows that hiring and firing practices are still very rigid and even deteriorating in the countries of Member States Area 3 (except Croatia) as well as in the Neighbouring and in the Accession Countries, while they are more flexible in the countries of Member States Area 1 and 2. This is partly confirmed by EPL data – e.g. in the Accession Countries and Croatia legislation on collective dismissals is very restrictive.[22] However, regarding the countries of Member States Area 1 and two countries of Member States Area 2 (Czech Republic and Slovenia) the EPL indicates that the protection of permanent workers against collective and individual dismissals is relatively rigid i.e. above OECD average while more flexible (below OECD average) in Slovakia and in Hungary.

Figure 46: Hiring and firing practices

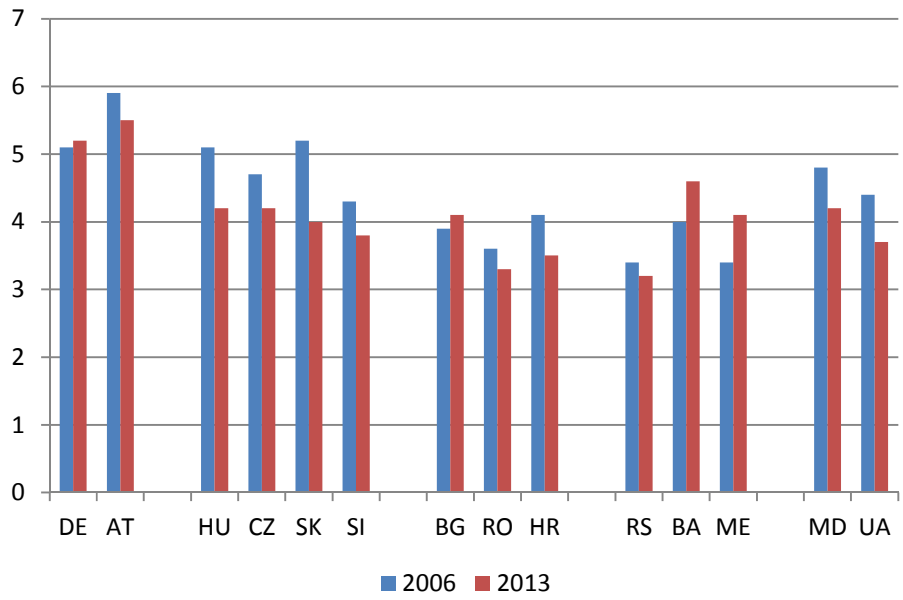


Notes: Question posed: "In your country, how would you characterize the hiring and firing of workers (1=heavily impeded by regulations; 7=extremely flexible)"
Source: The Global Competitiveness Report WEF 2006-2007 and 2012-2013. Calculation and illustration: wiiw.

lective dismissals. With respect to the Danube Region the EPL index is available only for Austria, Germany, the Czech Republic, Hungary, Slovakia and Slovenia.

[22] Gligorov, V. et al. Western Balkan Countries: Adjustment Capacity to External Shocks, with a Focus on Labour Markets, wiiw Research Reports no. 352, December 2008.

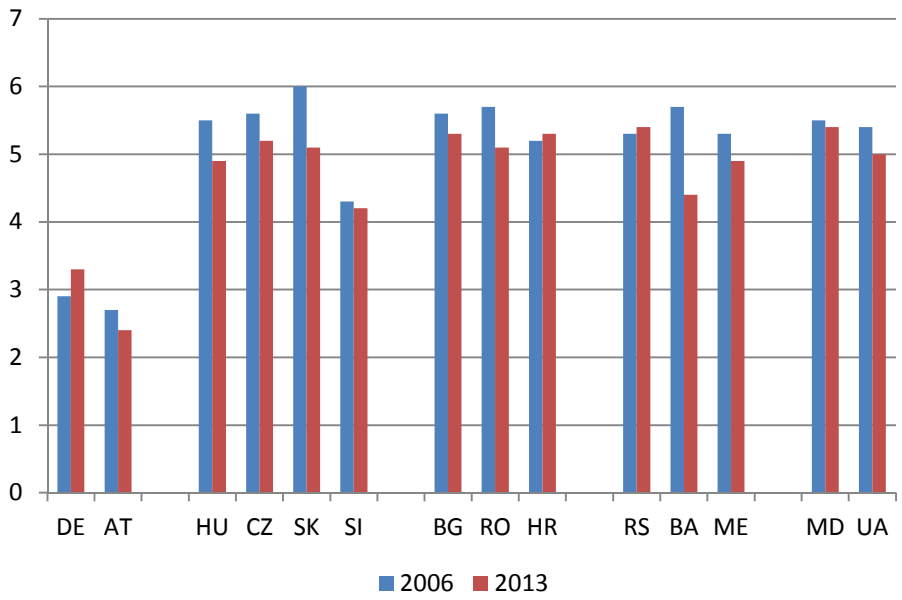
Figure 47: Cooperation in labour-employer relations



Notes: Question posed: "In your country, how would you characterize labour-employer relations (1=generally confrontational; 7= generally cooperative)"
Source: The Global Competitiveness Report WEF 2006-2007 and 2012-2013. Calculation and illustration: wiiw.

As illustrated in Figure 47 cooperative relations between workers' and employers' organizations are much more developed in the best performing Danube Region countries (Member States Area 1) than in all other subregions with a particularly low degree of cooperation in the Member States Area 3.

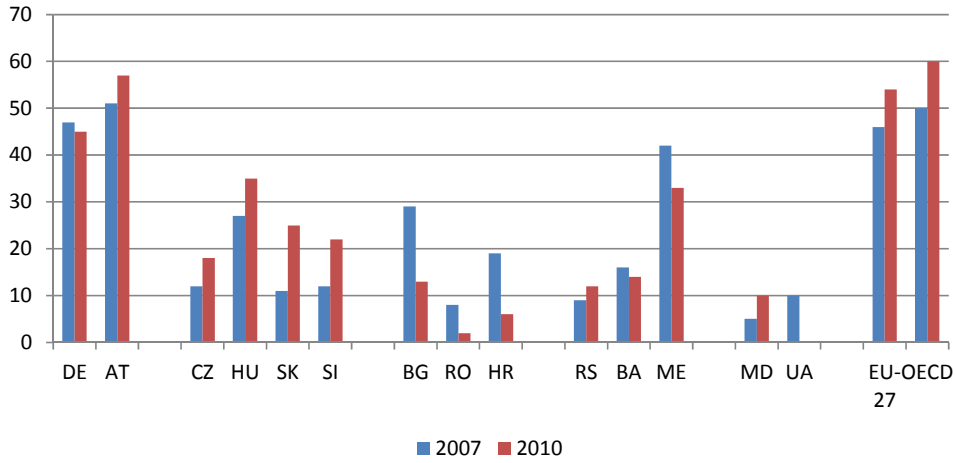
Figure 48: Flexibility of wage determination



Notes: Question posed: "In your country, how are wages generally set (1=by a centralized bargaining process; 7=by each individual company)"
Source: The Global Competitiveness Report WEF 2006-2007 and 2012-2013. Calculation and illustration: wiiw.

Figure 48 shows that good performers also have a fair degree of bargaining centralization. Except the countries of Member States Area 1 where wage bargaining is centralized on industry level in most other subregions of the Danube Region company level wage bargaining is dominant.

Figure 49: Expenditures on active labour market policy (in % of GDP)



Note: Data (2010) for EU-27 refer to 2009 .

Source: Eurostat, OECD, CPESSEC Statistical Bulletin, various issues, SPSI Synthesis Report on Belarus, Moldova and Ukraine. Calculation and illustration: wiiw.

Regarding labour market policies spending on active labour market policy measures (ALMP) varies significantly across the Danube Region. As illustrated in Figure 49 overall, expenditures as a share of the GDP were in the whole region below both EU-27 (0.6%) and OECD (0.7%) levels in 2009/2010. Expenditures are highest in the countries of Member States Area 1 having a long tradition in active labour market policies while spending in the Accession Countries (except Montenegro) and in the Neighbouring Countries is extremely low; in the latter expenditures on active labour market policies accounts for around 0.1% of GDP. Most EU member States within the Danube Region experienced an increased spending on active labour market policies after the outbreak of the crisis; exceptions being the countries of Member States Area 3 where spending on active measures was cut considerably. With the exception of Serbia also in the Accession Countries the share of expenditures for ALMPs in the GDP fell significantly during the crisis.

Conclusions

Differences also occur with regard to labour market institutions across the Danube Region: The countries of Member States Area 1 have well-functioning industrial relation systems, wage bargaining is very centralized (vs company wage bargaining) and spending on active labour market policies is significantly higher than in the other groups of countries. Information on hiring and firing practices is controversial in particular for countries of Member States Area 1 depending on the source used. As for the others, it appears that regulations are still very rigid in the Accession and in the Neighbouring Countries and more flexible in the countries of Member States Area 2.

3.4 Regional development, infrastructure and environment

3.4.1 Regional development, urbanisation, and rural areas

From a geographical perspective, the economic development of the Danube Region countries is not a homogenous process. Splitting each country into regions immediately reveals that the economic processes, which seem to be clear at the country level, are in fact the sum of quite heterogeneous patterns at the regional level. Consequently, acquiring a deeper understanding of the development potential of the Danube Region and its countries requires, besides all the information this report already contains, also some reflection on the regional dimension.

Overall, the Danube Region can be split into 65 regions, corresponding to the EU NUTS-2 classification[23] (or equivalents for the non-EU countries). The choice of NUTS-2 level of regions is motivated by the circumstance that this level is also the reference point for EU regional policy, and thus links the analysis, at least data-wise, with broader aspects of regional development. Additionally, the use of the NUTS classification, at least in principal, should ensure a certain comparability of regions in terms of population size[24]. In practice,

[23] NUTS: Nomenclature des unités territoriales statistiques

[24] EU Regulation (EC) No 1059/2003 states that NUTS-2 regions are supposed to have between 800 thousand and 3m inhabitants. However it also states that "existing adminis-

there are large population differences across NUTS-2 regions in the EU, and also in the Danube Region. Referring to the latter, the largest region is Oberbayern with more than 4.3m inhabitants, while the smallest region, District Brčko in Bosnia-Hercegovina, has a population of slightly more than 75 thousand people (in the year 2011)[25]. This raises some comparability issues, which will be dealt with in the data section.

Although each of the 65 regions in the Danube Region is in one way or another special, and thus would deserve an individual treatment, a concise analysis of the regions clearly requires some form of organisation in order to keep the analysis and the results manageable. A fruitful way to do this is to group the 65 regions firstly according to the country groups defined at the beginning of this report (Member States Area 1, Member States Area 2, Member States Area 2, Accession Countries).[26] Neighbouring countries' regions are not analysed.

Secondly, in each subgregion of the Danube Region the regions are again split into three groups according to their population density (population by km^2), thus resulting in groups of urban, intermediate and rural regions. Using population density as selection criterion is, by experience, a sensible measure, as it tends to condense a number of characteristics important for regional development into one indicator. Most prominently, it is an indicator of agglomeration forces and externalities that, not only since Krugman[27], are known to be key for regional development.

The definition of which region is being regarded as urban, intermediate or rural was subject to expert's opinion. The exact choice was motivated firstly by the need to find meaningful values of population density to identify the three

trative units within the Member States shall constitute the first criterion used for the definition of territorial units".

[25] A complete list of regions and population size is provided in the annex.

[26] Due to its small size Montenegro is not split into regions.

[27] Already in 1890 Alfred Marshall mentioned in his „Principles of Economics" the advantages of producing in an industrial district.

groups of regions. Secondly, the choice was also influenced by distributional aspects, so that all groups are non-empty. From this the regions' definition is:

- Urban regions: population density higher than 200 inhabitants/km^2
- Intermediate regions: population density between 88 and 200 inhabitants/km^2
- Rural regions: population density below 88 inhabitants/km^2

Table 5 provides an overview of regions per subregion of the Danube Regon and type of region. Overall, the subregoins of the Danube Region tend to have a similar number of regions, except for the Balkan countries that due to their smaller size have less regions.

From an analytical point of view, already the distribution of regions across country groups and regional types provides some valuable information regarding differences in the development potential of the Danube Region countries. Thus, the main difference in terms of settlement structure between the more prosperous country groups, i.e. Member States Areas 1 and 2, and the two less developed groups, i.e. Member States Area 3 and the Accession Countries, is that in the first two subregions of the Danube Region the degree of urbanisation is considerably higher than in the latter subregions.

Accordingly, the number (and share) of urban or intermediate regions is much higher in Member States Area 1 and 2 compared to Member States Area 3 and the Accession Countries, which instead are characterised by a relatively large number of rural regions.

Table 5: Number of regions, by country group and type of region

	urban	intermediate	rural	Sum
AT, DE	7	7	6	**20**
CZ, HU, SI, SK	4	11	6	**21**
BG, RO, HR	1	4	11	**16**
RS, BA, ME	1	3	4	**8**
Total	**13**	**25**	**27**	**65**

Source: Eurostat, national statistics. Calculation and illustration: wiiw.

These differences in the degree of urbanisation give rise to the assumption that the Danube Region countries also face differences in the ability to benefit

from agglomeration externalities. To illustrate, such externalities are (following Alfred Marshall): a) labour market pooling, i.e. the larger the population in the region, the higher is the available labour for firms. At the same token, the higher the number of firms is, the higher are the chance for workers to find employment; b) information or knowledge sharing and c) the sharing of specialised inputs. Other externalities refer often to trade costs, which are lower the larger an agglomeration is (as more of the demanded goods can be produced within the region), giving rise to a strong home market effect and also to cumulative growth processes. Generally, agglomeration externalities are seen to be connected to increasing returns (at firm or economy level), and thus are an important source of economic growth and development. And, referring back to the Danube Region, as the size of these externalities depends inter-alia on population density, it is expected that the growth potential in the Danube Region countries and their regions tend to differ widely, with the least prosperous regions also having the worst perspectives.

Table 6 adds some information on the (population weighted) average population density in the regional groups. Notably, especially the numbers for urban regions have to be taken with caution. Firstly, as in each of the last two groups there is only one urban region, the numbers reflect essentially the population density in Bucharest and Belgrade, respectively. Secondly, the population density depends also on the geographic definition of regions. Hence, e.g. in cases like Vienna or Prague, both cities are defined as a region on their own, while in cases like Munich or Budapest, the cities are embedded in a wider region, thus lowering the average population density. For intermediate and rural regions this is less of a problem, so that the results are safer to compare across country groups.

The results indicate that beyond differences in the distribution of regions across the three types, there are additional differences across the intermediate and rural type of regions. Hence, on average population density for both, intermediate and rural regions, tends to be higher in the countries of Member States Area 1 and 2 than in the countries of Member States Area 3 and the Accession Countries. These differences add to the point, that population and agglomeration-wise, large differences in the development potentials across the regions and the countries in the Danube Region can be assumed.

Table 6: Average population density 2011, by subregions of the Danube Region and type of region

	urban	Intermediate	rural	Average
AT, DE	650.2	140.7	72.8	**428.6**
CZ, HU, SI, SK	795.1	113.5	77.1	**251.5**
BG, RO, HR	1245.0	97.7	69.0	**159.7**
RS, BA, ME	513.1	90.6	63.7	**137.8**
Total	**720.2**	**111.8**	**70.3**	**263.4**

Note: Numbers are population weighted averages.
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

Certainly, population density is not the only indicator one may look at when analysing the development potential of the regions in the Danube Region countries. A full assessment requires many more indicators and ideally covers all the aspects, which are analysed in this report at the country level, at the level of regions. For a concise overview however it suffices to pick out a small number of indicators, that alone as well as in sum cover directly or indirectly the most important factors regarding the regions' economic potential. That is, besides population density four other indicators are chosen for the analysis:

1. *Sectoral structure of employment*: Besides providing information on the regions' pattern of specialisation, this indicator also allows to draw conclusions on likely future paths of development. In general, the regions' sectoral structures are not likely to change overnight, rather they are the result of long run developments based on the regions' characteristics. That is, the present structure of a region, i.e. whether it is industrial, agricultural or services oriented, is indicative of its future pattern of specialisation. For example industrial regions, having a labour force with skills adjusted to the needs of industries and a relatively large number of firms, are certainly a more attractive location for new manufacturing firms than e.g. purely agricultural reason. Additionally, there is also some correlation between the pattern of specialisation and the level of regional GDP, which allows drawing conclusions on the path of general economic development.

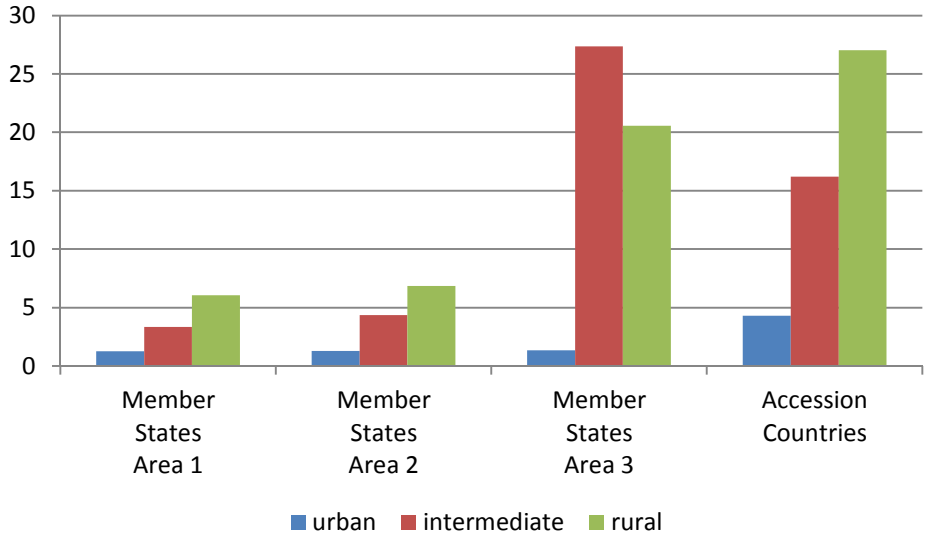
2. *Unemployment rate*: It provides immediate information on the situation on the labour market. Moreover, in combination with the sectoral structure, it also gives some information on the ability of existing production structures to provide jobs for the regions' population. It thus may provide some indication of potential structural weaknesses of the region or the firms operating therein.
3. *Educational structure of the labour force*: The availability of a skilled workforce is essential for the development of a region's and country's development. Establishing new and possibly technologically more advanced firms or industries demands, besides other factors, an adequately skilled labour supply.
4. *GDP per head of the regions*: As GDP is the main (summary) indicator of an economy's economic performance, it is the best individual indicator to describe the level of development. Moreover, it is correlated with the (non-agricultural) employment rate, as well as with productivity and wage levels, thus integrating several important aspects at the same time.

The data for the analysis are taken from Eurostat for the EU member states of the Danube Region. Data for the Balkan countries come from national statistical sources, such as the statistical yearbooks and labour force survey. Additional data on Montenegro was supplied by wiiw. The analysis focuses on one year per indicator for data availability issues. Though in most cases data were available for more than one year, it was not sufficient to construct longer time series, which would have allowed analysing longer run development paths.

Because of the regions' differences in population, all group results are population weighted, thus attaching more weights to larger regions.

Starting with the sectoral employment structure, Figure 50 to Figure 52 show the share of agriculture, industry and services by subregion and type of regions.

Figure 50: Share of agriculture in total employment 2012, by subregion of the Danube Region and type of region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME

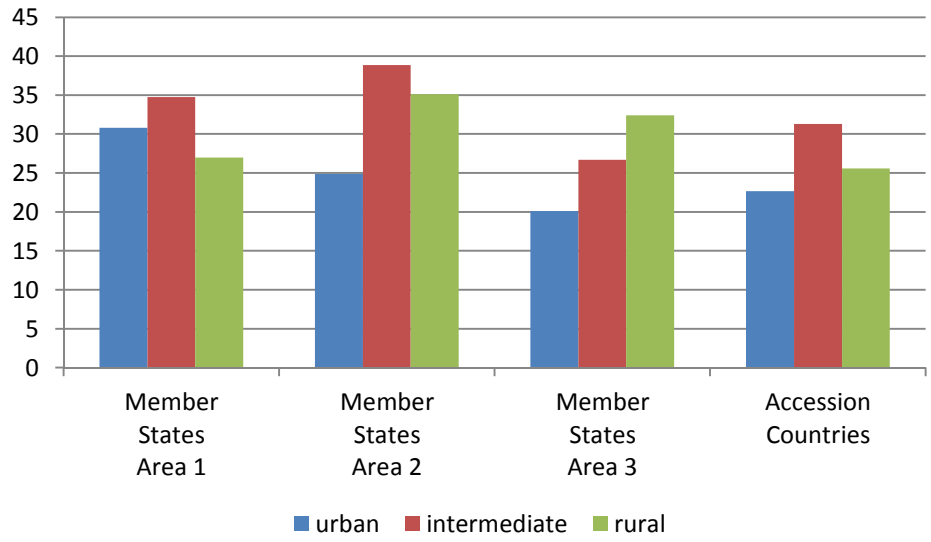
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

The most striking difference between the regions is the difference in the share of agricultural employment. On average both, the regions of the countries of Member States Area 1 and 2 tend to a have a relatively low agricultural share, just as the urban regions in the other two subregions of the Danube Region. Moreover in the first two subregions, the share of agricultural employment is as expected negatively correlated with population density.

By contrast, in the intermediate and rural regions in the countries of Member States Area 3 and the Accession Countries, agriculture is still an important source for employment, as it covers in both, the intermediate regions in Bulgaria, Croatia and Romania, as well as in the rural regions in Bosnia and Herzegovina, Montenegro and Serbia, around one quarter of total employment. Given that a large share of this agricultural employment is either due to subsistence farming or of otherwise low productivity, this has immediate consequences for the general level of GDP and incomes in those regions. It also can constitute a problem for longer run development of these regions, not only because the high share of agriculture might be accompanied by a general lack of employment opportunities in other sectors and also and unfavourable skill

structure, but also by a lack of capital accumulation - due to low income levels – inhibiting the development of own industries or services. In addition, given the experience from other countries, such regions are usually not the preferred location for foreign investors, which in sum leaves a quite pessimistic picture of the development potential of these intermediate and rural regions.

Figure 51: Share of industry in total employment 2012, by subregion of the Danube Region and type of region



Source: Eurostat, national statistics. Calculation and illustration: wiiw.
The flip side of the medal is that due to the large agricultural share, the employment shares of industry and services are as a tendency lower in the intermediate and rural regions in the countries of Member States Area 3 and the Accession Countries.

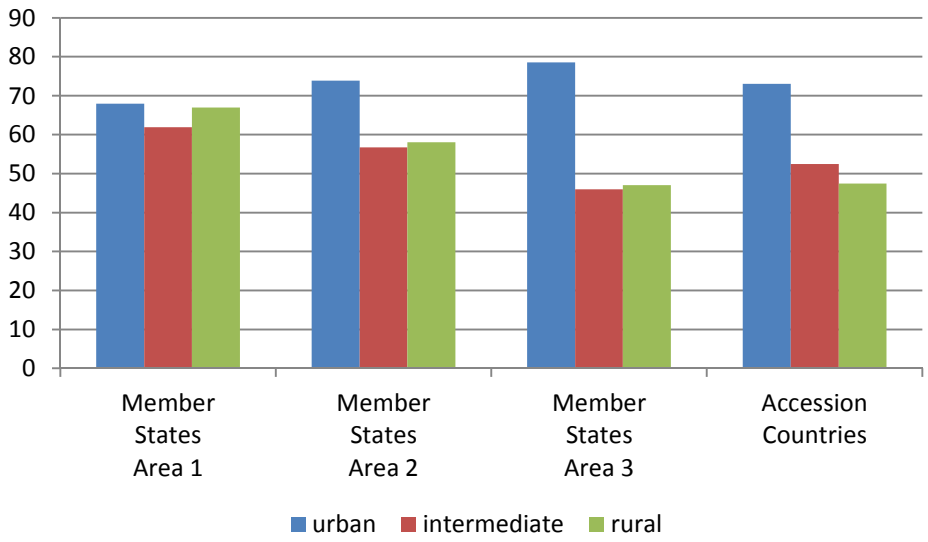
Referring to industry, it has to be noted that, because of data availability, the data include construction, which partly explains the high share of industry in the urban regions. On the other hand, especially the German urban regions are highly industrialised, so that their industry employment share is relatively high. In general, a comparison of Member States Area 1 and 2 with Member States Area 3 and the Accession Countries in terms of industrial employment, is to some extent unfair, as the intermediate and rural regions in the first two subregions of the Danube Region are amongst the strongest industrial regions in the whole EU. Accounting for this, the share of industries in the regions of the latter two groups is approximately equal or even above European stand-

ards. Partly this also shines through in the data, as the employment share of rural regions in the countries of Member States Area 3 is higher than in Austrian and German rural regions. In the Accession Countries rural regions the share is approximately equal (Figure 51).

A drawback of the data is that it does not allow differentiating manufacturing industries by detailed sectors. Thus, even if the industries have a quite normal share in employment in the intermediate and rural regions in Member States Area 3 and the Accession Countries, nothing can be said about whether these are high or low tech industries, whether they are competitive on domestic and international markets etc. For this, inferences from the country data have to be made.

The largest differences in employment shares between countries and regions are found in services employment (Figure 52). In Germany and Austria, services employment tends to be high (above 60% of total employment) and relatively equally distributed across the three types of regions.

Figure 52: Share of services in total employment 2012, by subregion of the Danube Region and type of region



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME.
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

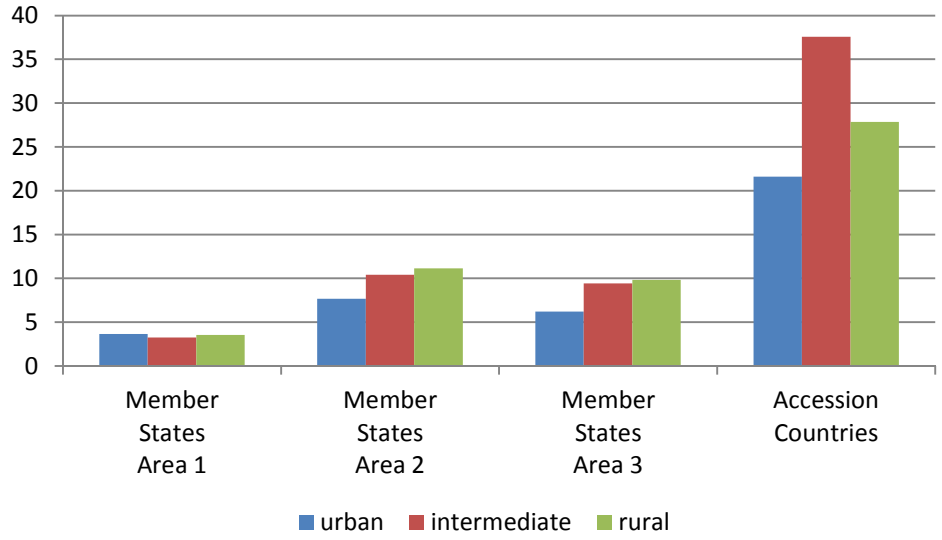
In the other subregions of the Danube Region, service employment is strong only in the capital cities, i.e. the urban regions, while the intermediate and rural regions have a low share on employment in services. Still, there is some differentiation between the countries of Member States Area 2 and 3 and the Accession Countries in this respect. Services in the former group of countries are better developed than in the latter two groups. One reason for this might be differences in the settlement structure, if the countries of Member States Area 2 have a higher number of larger cities, which, in general, support the development of the services sector. Another reason may be the existence of differences in income levels, as most services activities depend on income generated in other sectors of the economy.

The unemployment rates by country groups and types of regions are shown in Figure 53. Besides the large differences in unemployment between the regions in Bosnia and Herzegovina, Montenegro and Serbia and the regions in the other three subregions of the Danube Region, three facts are important to note.

Firstly, referring to the employment structure, it has been mentioned that in the regions of Group 3 and 4 countries this structure, especially regarding the share of manufacturing industries is comparable to the European average. Taking this into account and looking at the unemployment rates, gives an indication of the extent to which industries in the regions of the Accession Countries are unable to create jobs and employment. The underdeveloped services sector adds to the unemployment problem.

Secondly, unemployment rates in the intermediate regions are considerably higher than in the rural regions of Bosnia and Herzegovina, Montenegro and Serbia. This is not an unusual pattern, as it can be observed e.g. in Poland as well. There, agricultural rural regions tend to have lower unemployment than more industrialised regions. The reason for this is that agriculture, especially subsistence farming, has a dampening effect on unemployment rates. At the same time it can be assumed that because of this hidden unemployment is high. Given the high share of agricultural employment in the rural regions of the Accession Countries, similar mechanisms can be expected to operate there.

Figure 53: Unemployment rates 2012 (in % of population aged 15 and older), by subregions of the Danube Region and type of region

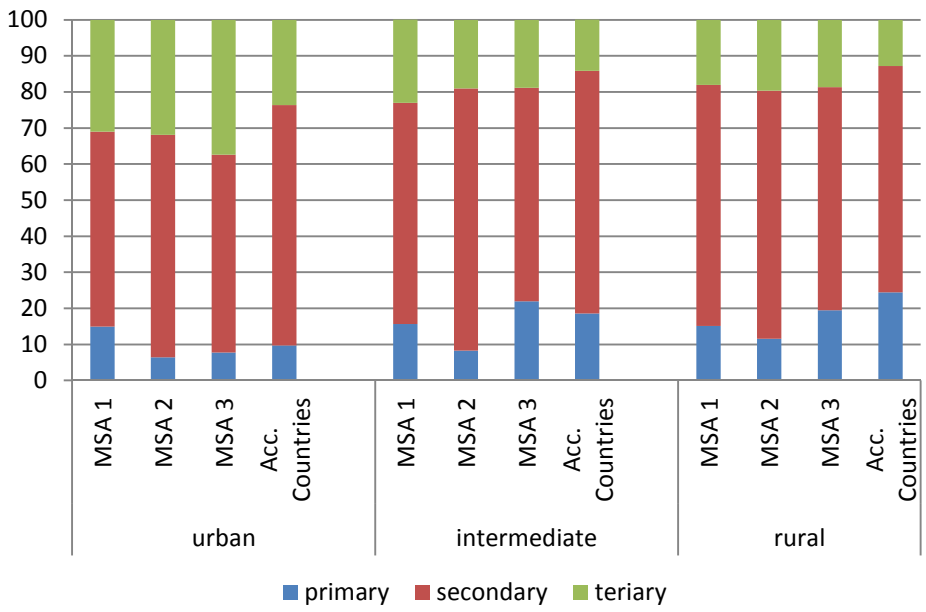


Notes: Member States Area 1: DE, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME.
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

Thirdly, unemployment rates in urban regions are always lower than in intermediate or rural regions. This is a very general pattern across many countries and basically show the economic advantages cities – not only capital cities – have in this respect over less densely populated areas. Main explanatory variables in this respect are agglomeration externalities again, but also the central role cities play in local economies, e.g. as centres of administration, education, health etc.

Regarding the educational structure of the labour force, Figure 54 suggests that the differences between the subregions of the Danube Regoin are not particularly strong. Splitting the labour force into three educational groups (people with a) completed tertiary education, b) completed secondary education and c) primary education), indicates that in any subregion of the Danube Region urban regions have the highest share persons with completed tertiary education. This is a typical pattern regarding the skill distribution across regions and is mainly related to the higher demand for highly skilled workers in urban regions. Accordingly, in intermediate and rural regions, the share of people with primary and secondary education is higher than in urban regions.

Figure 54: Shares of labour force by education 2012 by subregoins of the Danube Region and type of region



Notes: MSA 1 (Member States Area 1): BW, BY, AT; MSA 2(Member States Area 2): HU, CZ, SK, SI; MSA 3 (Member States Area 3): BG, RO, HR; Accession Countries: RS, BA, ME
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

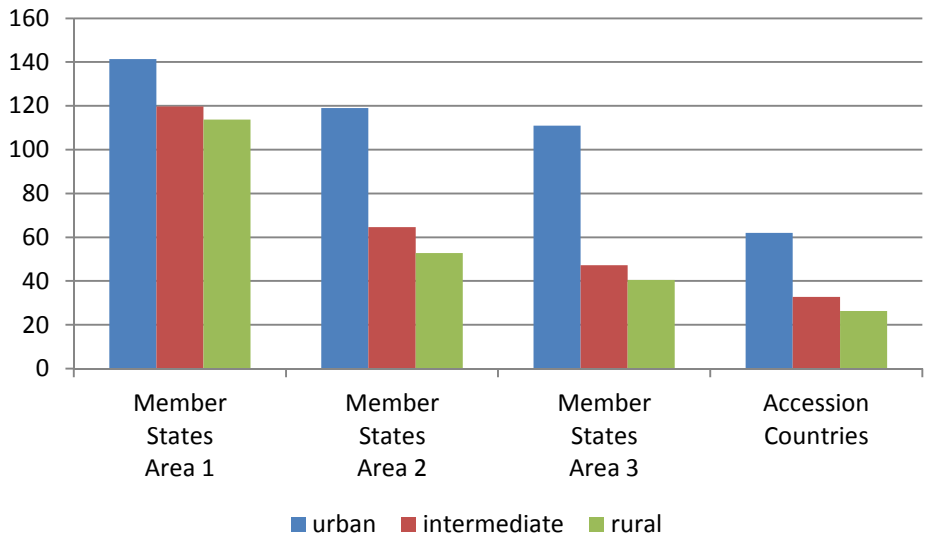
Those differences that exist refer especially to the non-urban regions in Member States Area 3 and the Accession Countries, which have a relatively large share of primary educated in the labour force. Partly this can be related to the importance of agriculture in those regions. Regarding the development potential of these regions, the share of primary educated is considered to be not too much of a problem. This is because the share of people with secondary education, which form the main labour supply for industries, is comparably high, especially if these regions are compared with other regions in Europe, like e.g. in Italy, Portugal, Spain and Greece.

Notably, the available data do not allow analysing the skill structure in more detail. Hence issues of whether the skills offered do correspond to the skills demanded, or of the quality of education (as education is not the same as qualification) cannot be treated. But still, the data show that, at least in principle, the educational systems in those countries and regions are conducive to

economic development, as a large share of the population has the possibility to acquire secondary education or more.

Concluding with GDP per head (Figure 55 shows GDP per head at PPS in percent of the EU-27 average), the differences between the regions are not surprising, in the light of the differences in population density, employment structure and unemployment. Two points are remarkable, though.

Figure 55: GDP per head at PPS 2010 (in % of EU-27 average), by subregoins of the Danube Region and type of region



Note: Member States Area 1: DE, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME. Data for the Accession Countries refer to 2011.
Source: Eurostat, national statistics. Calculation and illustration: wiiw.

The first point refers to the size of the differences. While the richest regions in the Danube Region are well above the EU-27 average in terms of GDP per head, the income levels in the poorest regions is only at around one quarter of the EU average. Notably, most of these regions are found in the Accession Countries, but there is also a considerable number of Bulgarian and Romanian regions falling in this category. Hence, the gap these regions have to bridge to come anywhere near the European average is enormous, and the time necessary to do so could well span over a couple of decades.

The second point of interest is the high income levels of the urban regions – even Bucharest has surpassed the EU-27 average in 2010. Already the unemployment rates indicated an economic advantage of regions with larger agglomerations, and the data for the regions' GDP is an even stronger indicator in this direction. Both results suggest the importance of agglomeration externalities and the importance to have a critical mass of economic activity around which new, additional activities can be established and linked up to existing ones, thus creating a virtuous cycle of economic development. Notably, this does not only hold for big cities or agglomerations but also for smaller, local ones. By this, the results of the regional analysis directly link up with the section on cluster development in this report.

3.4.2 Transportation

The Danube Region has the potential to become a more competitive economic zone by improving transport network connectivity, accessibility, and resource efficiency. In the following, several selected indicators are presented in order to illustrate the present situation in terms of transport, energy use and supply, as well as aspects relevant to climate change. This chapter thereby reveals existing infrastructural bottlenecks and – once more – the marked heterogeneity between the Danube Region countries.

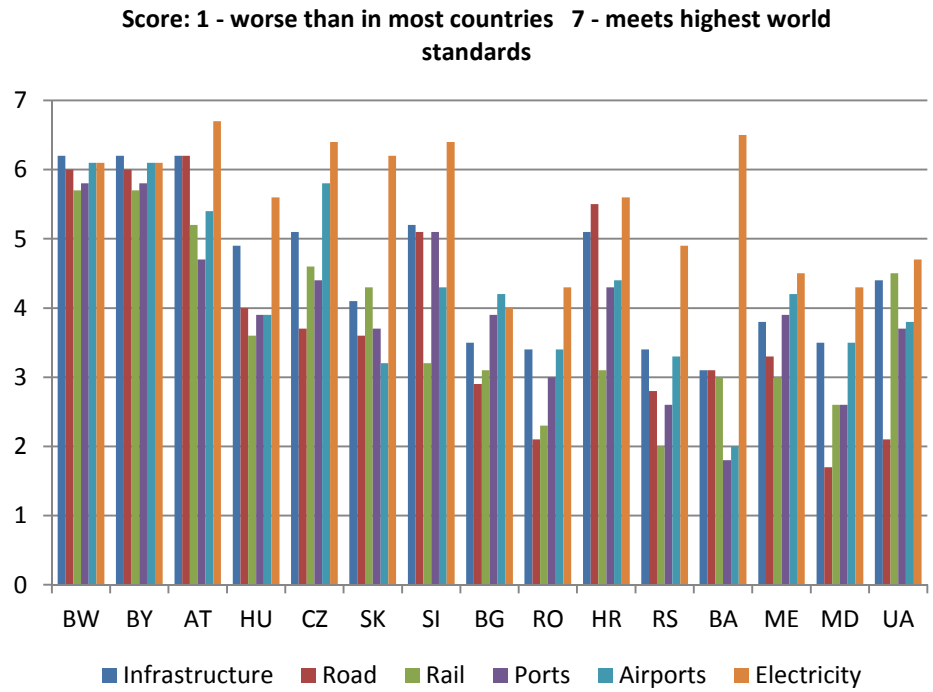
3.4.2.1 General Overview

Figure 56 shows an overview of the analysed scores of the WEF Global Competitiveness Report (Schwab & Sala-i-Martin, 2005-2013)[28]. In the WEF report, countries were rated in terms of road, railroad, port, airport, electricity and more. In addition, a general infrastructure score was generated by averaging the other related scores. This helps to analyse the deviations of the single transportation and electricity scores from the country average. Overall, one

[28] The WEF's Global Competitiveness Report is a particular important source for this chapter. The WEF report is a subjective analysis of different sectors of a country. It is based on a survey conducted by WEF where managers and high-level people from the field value the quality of e.g. infrastructure for the countries they do business with on a scale from 1 to 7, 1 being "worse than in most countries" and 7 being "equivalent to highest world standards".

can observe that the scores decline towards the eastern countries of the Danube Region. Exceptions of this trend are Croatia and Slovenia, which overperform compared to their region's neighbours and Hungary which underperforms a little compared to its direct neighbours. In general, the railroad and port sectors are underperforming in average and the electricity, the road and the airport sectors are overperforming compared to the infrastructure average.

Figure 56: WEF Global Competitiveness Report Scores 2013 (Summary)



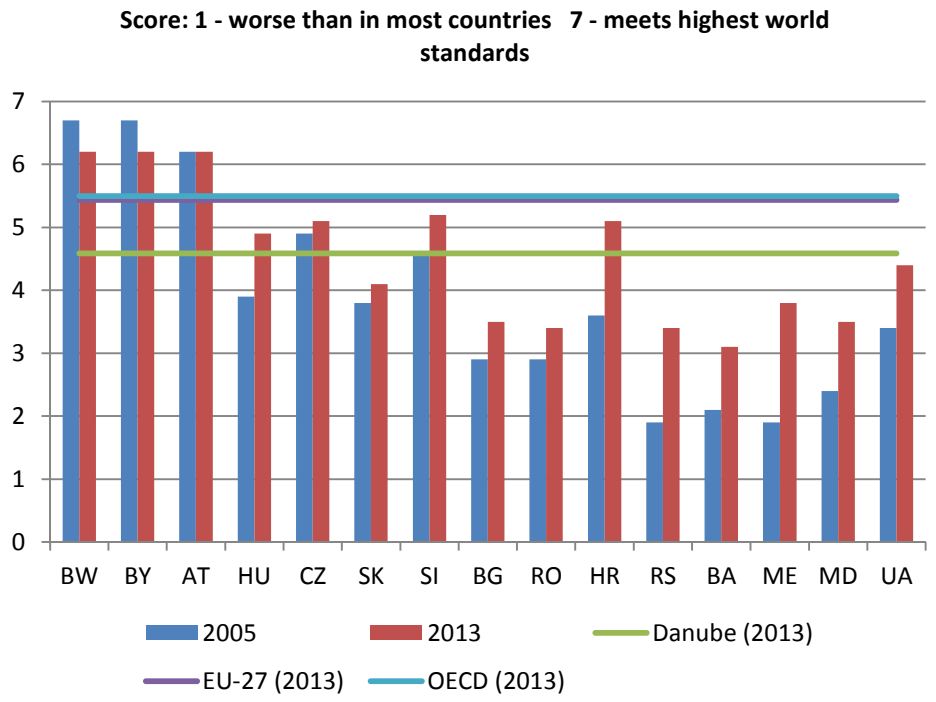
Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 57 shows the infrastructure scores of the Danube countries of 2005 and 2013. The horizontal lines indicate the scores of different benchmark regions, such as EU-27, the OECD and the Danube Region. Note that there was no data available for Baden-Wurttemberg and Bavaria, so German data was used as an approximation. The figure shows the same trend as Figure 56, i.e. the scores decline towards the east. Slovenia and Croatia are overperforming in the total

picture and under the assumption that the scores decline towards the east. In total the Danube Region underperforms the benchmarks of EU-27 and OECD, which are about the same. The eastern countries of the Danube Region have about half the score than the EU-27 or OECD benchmarks. However, comparing the scores of 2005 and 2013, it is that every single country of the Danube Region has improved its score and the eastern countries have improved most. But still their infrastructure cannot compete with western standards of today.

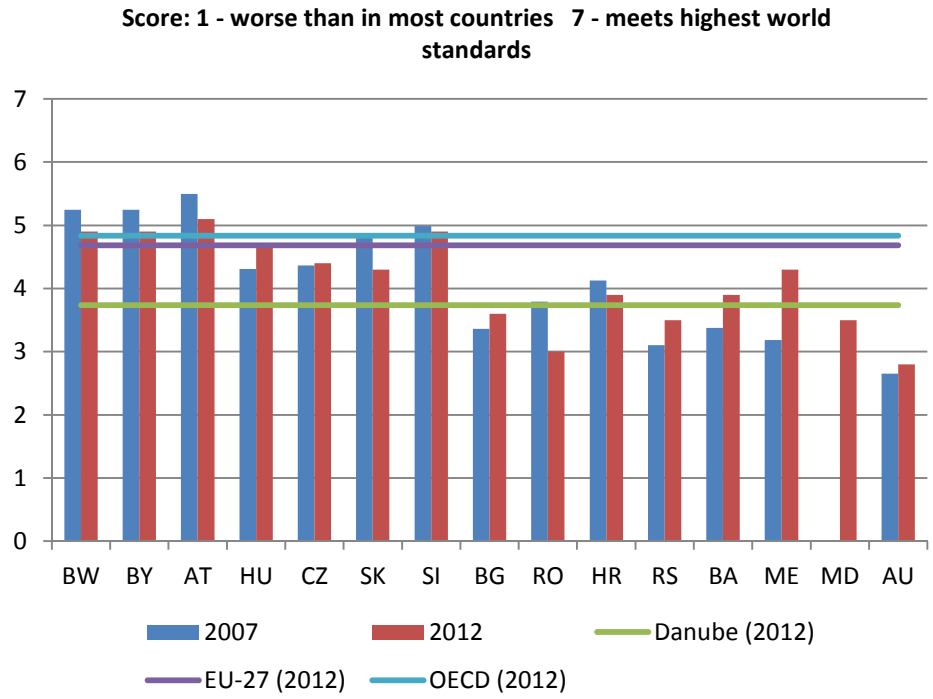
The Annex provides more detailed figures on the road, railroad and electricity scores based on the WEF report (see Figure 155 to Figure 157).

Figure 57: WEF Infrastructure Score 2013



Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 58: WEF Border Management Score 2012



Source: Database of the World Bank (Code: IQ.WEF.CUST.XQ, SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

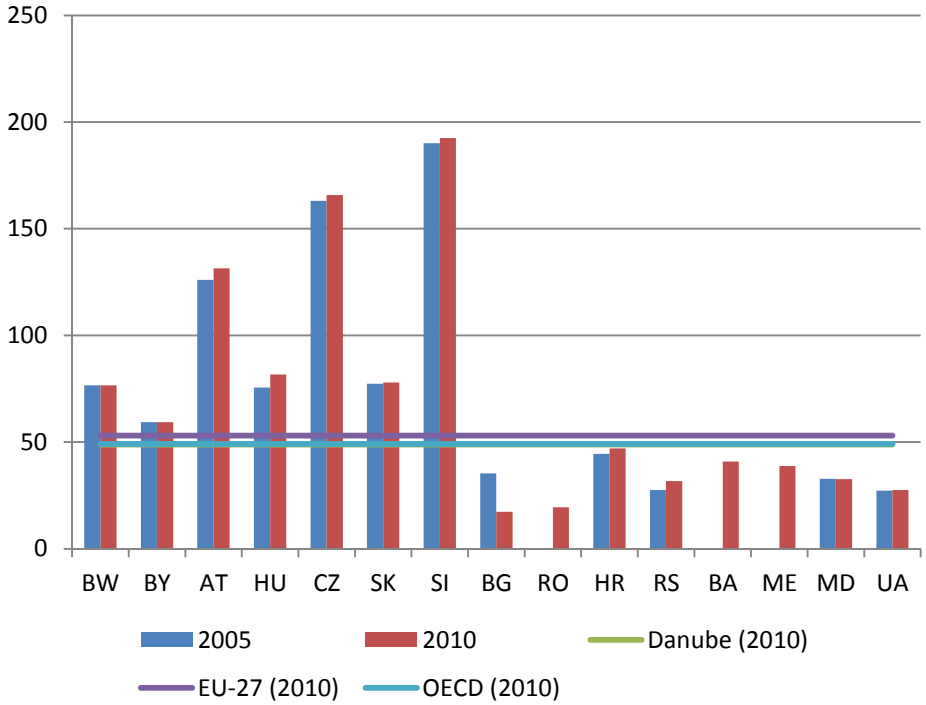
Figure 58 gives an overview of the border management scores. This includes all regularities concerning the procedure to do business across borders, customs, etc. Overall, the scores are closer together and therefore, the deviations from the benchmarks are not as large as in terms of other infrastructure (e.g. Figure 57). There is no general trend to observe, but the most western countries of the Danube Region are still performing best. Only few countries are performing worse than the Danube average, namely Bulgaria, Romania, Serbia, Moldova and Ukraine. Compared to other infrastructure scores, the average of the Border Management is almost one point below. This means, border management is a topic of concern in perspective. However, as the comparison to the benchmark regions shows, this is not a Danube-specific problem.

The comparison between 2007 and 2012 shows a divided picture. On the one hand some countries improved their border management, most of them in the east, and on the other hand some countries' border management is worse

than before. However the deviations are small and therefore do not have to state a trend or a change in the quality of border management.

3.4.2.2 Roads

Figure 59: Density of paved roads 2010 (in km road per 100 km^2 area)



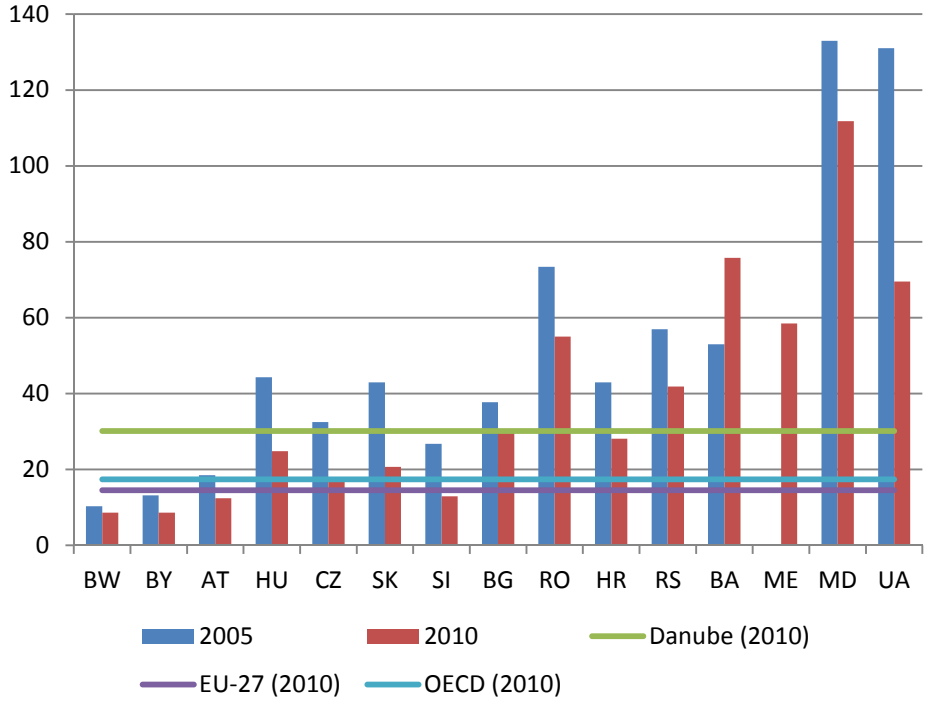
Source: Eurostat, Database of the World Bank (Code: IS.ROD.PAVE.ZS, IS.ROD.DNST.K2, IS.ROD.TOTL.KM). Calculation and illustration: ZEW.

Figure 59 shows the density of paved roads (in road kilometre per 100 square kilometres area). This figure is created by data showing the length of all roads of one country. The problem with this data is that it does not show whether the road has one or more lanes, therefore countries with many small roads are overvalued and countries with many large roads are undervalued. Also, countries have different population densities and therefore different network structures (many small roads vs. a few big roads). Hence this data is biased and conclusions should only be drawn taking also into account population densities. But overall it can be stated that the eastern countries of the Danube Region have a worse road network than the western ones. All of them are

underperforming the Danube benchmark and hence need improvement in order to improve competitiveness.

An alternative indicator for road performance is the Road score of the Global Competitiveness Report (see Annex Figure 155)

Figure 60: Road fatalities per 100.000 registered cars per year

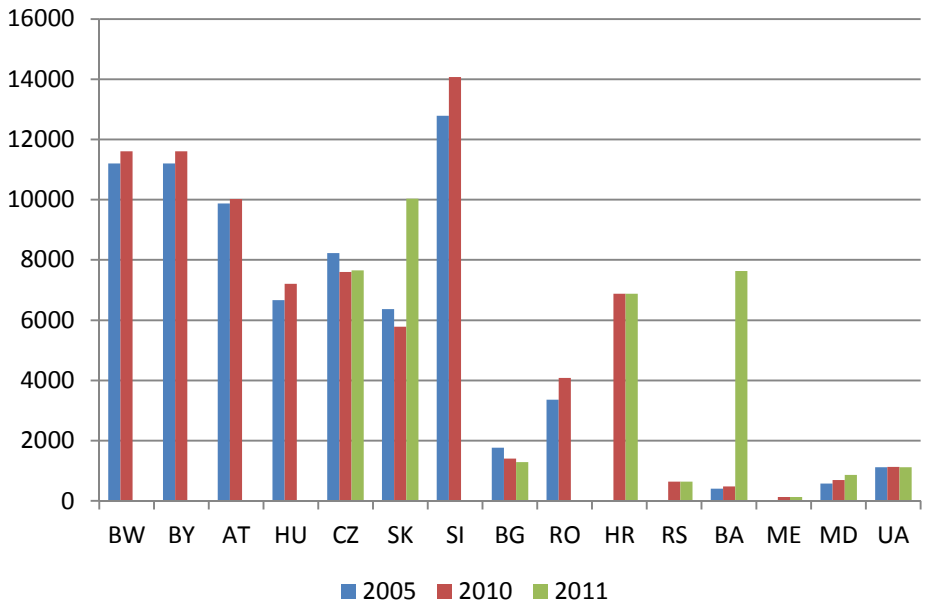


Source: Database of the World Bank (Code: IS.VEH.PCAR.P3), Statistische Berichte Baden-Württemberg Artikel-Nr. 3568 12001, UNECE (2010, 2011) Main transport indicators in the UNECE region 2009, 2010, UNECE Transport Division Database (Matrix: c0000920), Eurostat, OECD Factbook 2012. Calculation and illustration: ZEW.

Figure 60 shows the indicator "road fatalities per 100.000 registered cars per year". This indicator states how safe each country's roads are. The deviations between countries are very large for this indicator. By 2005 the worst country had about 13 times the road fatalities than the best performing country. Again, there is an observable trend from west to east. The western countries have by far the fewest road fatalities. The countries in between have about three times the road fatalities and most eastern countries still have up to ten times the road fatalities than most western countries.

But the overall trend is very positive: Since 2005 most of the Danube countries were able to cut their road fatalities by half. However, there are also a few exceptions where the road fatalities increased. Nevertheless, using the road for transport has become a lot safer over the last years.

Figure 61: Road passenger-km per inhabitant per year

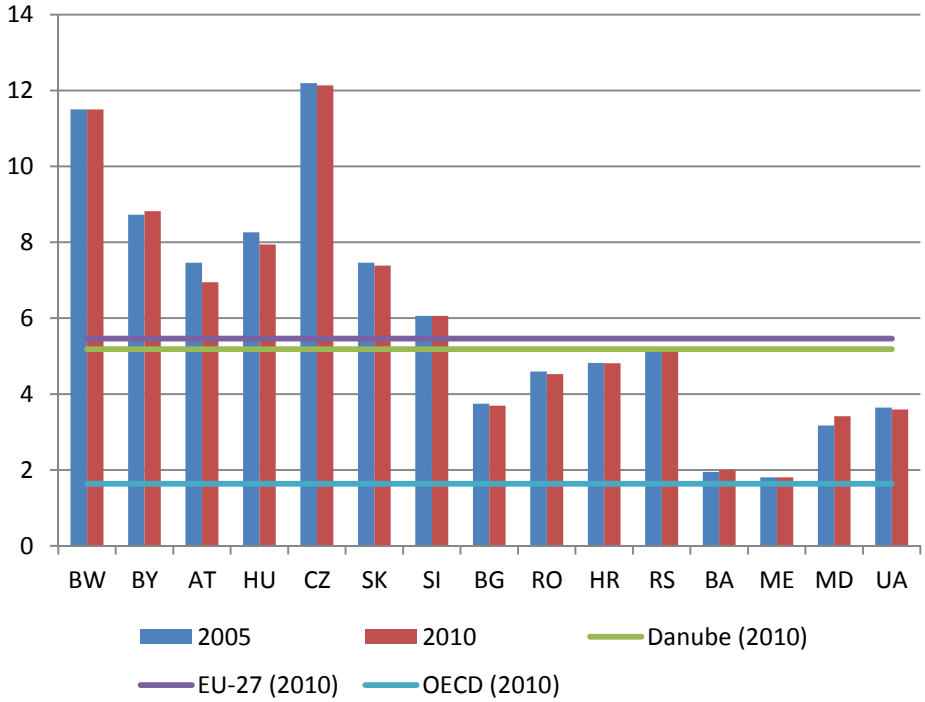


Source: World Bank Data (Code: IS.ROD.PSGR.K6, SP.POP.TOTL); Agency for statistics of Bosnia and Herzegovina, State Statistics Service of Ukraine, Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 61 shows the average number of kilometres each inhabitant of a country drove in the respective year on the road. It shows that, on average, people from the western Danube countries are using roads more intensively than people from the eastern countries (with Slovenia as an exception). Taking into account also the statistics on road fatalities (Figure 60), it turns out that the most used roads are the safest. This indicates the higher quality of the road infrastructure in those regions. It should be noted, however, that for some countries, in particular Bosnia and Herzegovina, the available data seems to be not reliable as it includes extreme and unusual differences between the years 2010 and 2011.

3.4.2.3 Railroads

Figure 62: Railroad density 2010 (in km railroad per 100 km² area)



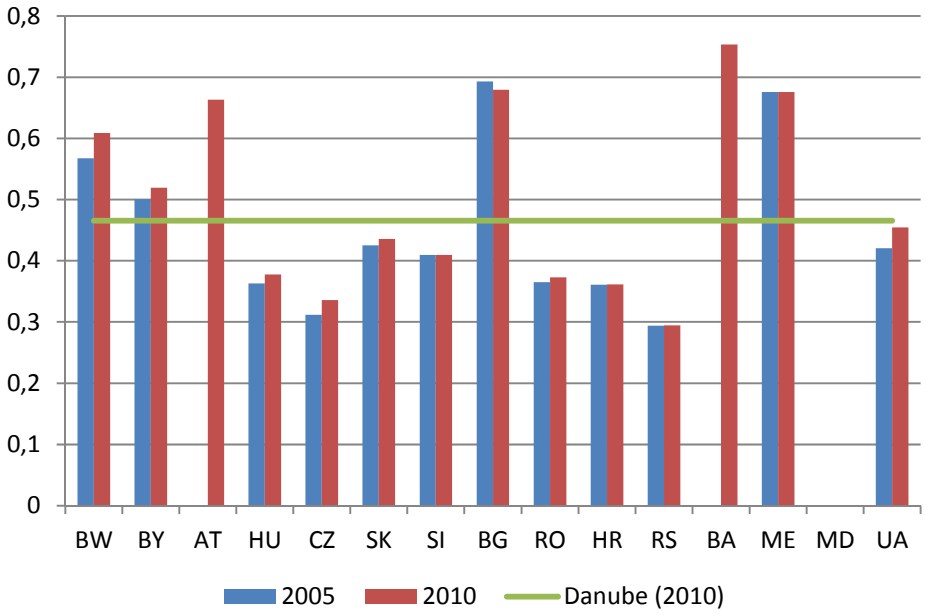
Source: Eurostat, Bayerns Wirtschaft in Zahlen 2011, 2012, CIA World Fact Book, Database of the World Bank (Code: IS.RRS.TOTL.KM). Calculation and illustration: ZEW.

Figure 62shows the railroad density 2005 and 2010. It should be noted that the data available for railroads suffers from the same problem as the data for roads (Figure 59). This means that only data for railroad lines is available, but not for the length of each track of a line. Therefore, countries with many one-track railroad lines are overvalued and countries with many multi-track railroad lines are undervalued.

The deviations between the countries are large. The best country has a six times denser railroad network than the worst. Railroad networks are the densest in the western parts of the Danube Region and decline towards the east. However, at the same time the western countries have higher population densities. Thus, some of the deviation seems natural and can be explained by different population densities, but not all of it.

An alternative indicator for railroad performance is the Railroad score of the Global Competitiveness Report (see Annex Figure 156).

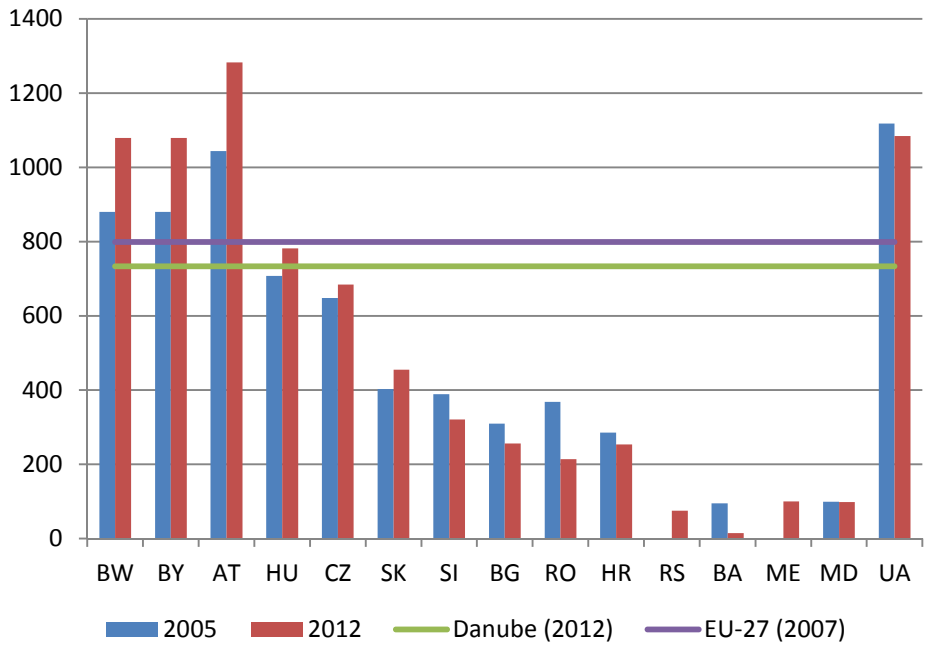
Figure 63: Share of electrified railroads



Source: Eurostat, CIA World Fact Book. Calculation and illustration: ZEW.

The electrification of the railroad network is a prerequisite for environmental friendly transportation, but it does not conclude it. Another prerequisite are modern, efficient electrical trains. Overall there is railroad electrification of 35% to 65%. Just Moldova does not have any electrified railroad line at all. Also, there is no increasing trend in electrification between 2005 and 2010 observable. Towards a modern railroad network, all countries need to improve their electrification.

Figure 64: Railroad passenger-km per inhabitant

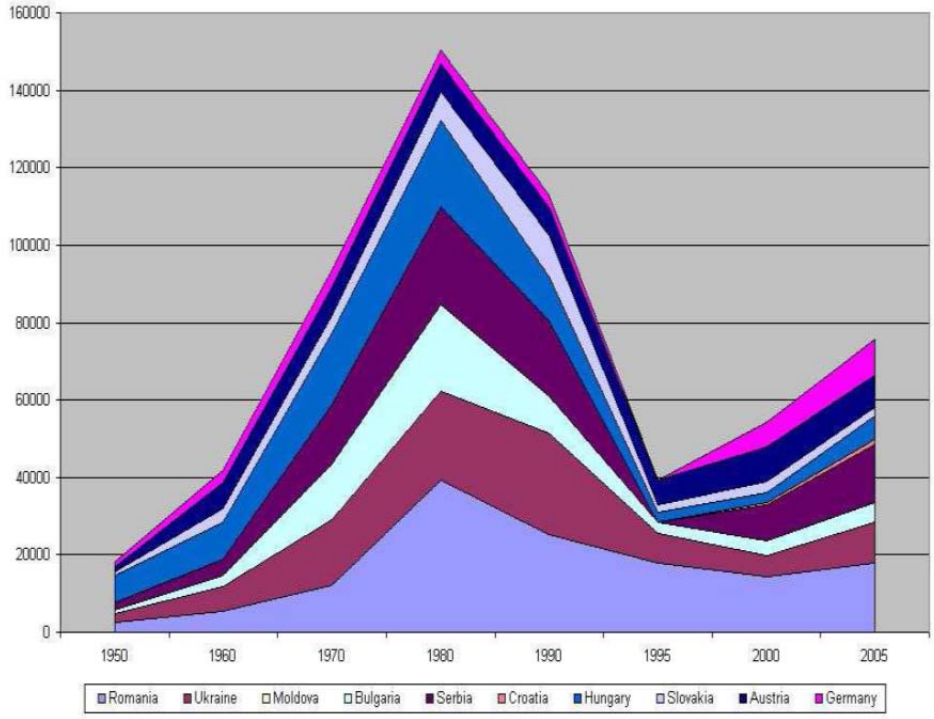


Source: Eurostat, Database of the World Bank (Code: IS.RRS.PASG.KM, SP.POP.TOTL), Montenegro Statistical Office, Agency of statistics of Bosnia and Herzegovina, Statistical Office of the Republic of Serbia, National Bureau of Statistics of the Republic of Moldova, State Statistics Service of Ukraine, Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 64 shows the average number of kilometres each inhabitant of a country drove by railroad in the respective year. The use of trains is highest in the west with a sharp decline towards the east, with the Ukraine as an exception. In the western part of the Danube Region, the distance travelled by a person is up to twelve times higher than in the eastern part. To some extent these differences can be explained by different amounts of wealth between the countries. Another important factor that drives this result is the quality of rail infrastructure. Ukraine though is an exception of the general trend. It seems that people in this country deeply rely on traveling by train. This is observable by comparing the use of road travel to the use of railroad travel. In order to be more competitive, eastern countries of the Danube Region have to improve their railroad networks and interconnectivity between different modes of transport.

3.4.2.4 Ports and the Danube River

Figure 65: The traffic in harbours on Danube (by country) for the period from 1950-2005 (thousands of tons)



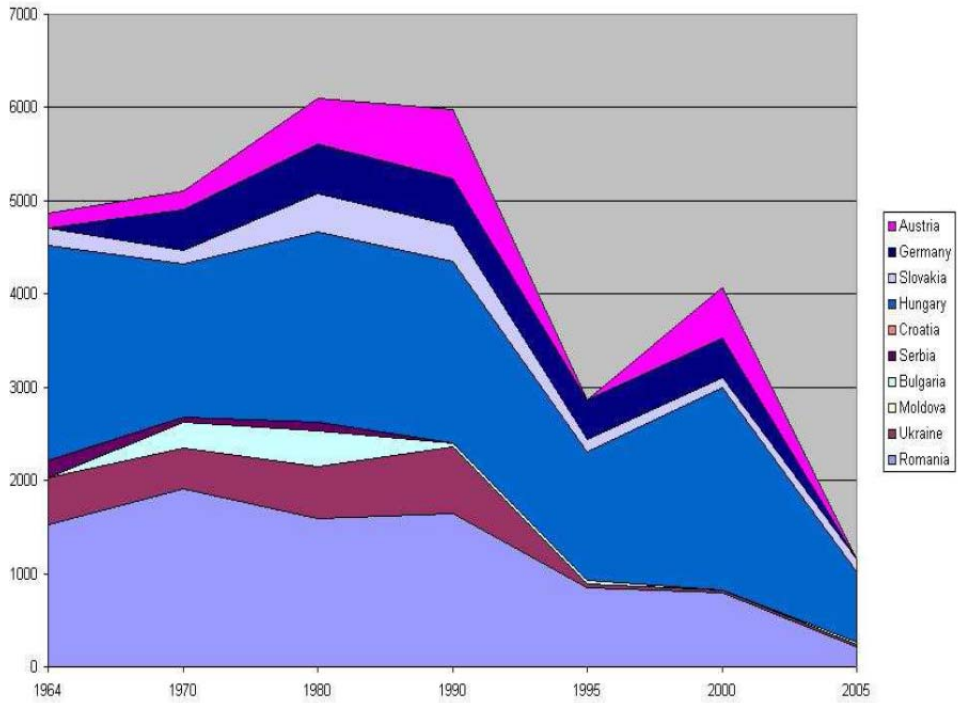
Source: (Mihic & Andrejevic, 2012). Calculation and illustration: ZEW.

In Europe, the total water transport is decreasing since 1970, while the overall transport is increasing (Mihic & Andrejevic, 2012). In the case of the Danube River, transport volume was the highest around 1987 (150m tons). After that it rapidly decreased due to the fall of the Iron Curtain and the Yugoslav wars. Political instabilities caused the transport volume to drop to less than a quarter of what it was before. The lowest point was reached in 1994 (35m tons). Since then transport volumes are recovering, but are still far away from pre-1990 levels (Nedea, Milea, & Pascu, 2012).

Figure 65 gives the traffic volumes of the Danube river harbours. Since the mid-1980s transport was rapidly declining on the Danube River. In countries that were directly involved in the Yugoslav wars, Danube traffic almost came to a standstill until the mid-1990s (Nedea, Milea, & Pascu, 2012). Other eastern European countries' transport volumes also decreased, but not as much. A

reason for that might be the general economic downturn in the former Soviet Union after the fall of the Iron Curtain. The two western European countries, Germany and Austria, were less severely affected. Interestingly, their transport volumes increased rapidly some years after the fall of the Iron Curtain. Where the eastern European countries slowly recover the transport volumes they had before, Germany and Austria exceeded their volumes by far. A reason might be the relatively good economic starting position and infrastructure of Germany and Austria that allowed them to exploit the potentials of the new arising markets more quickly.

Figure 66: Passenger transport on Danube from 1964 to 2005 (expressed in thousands)



Source: (Mihic & Andrejevic, 2012). Calculation and illustration: ZEW.

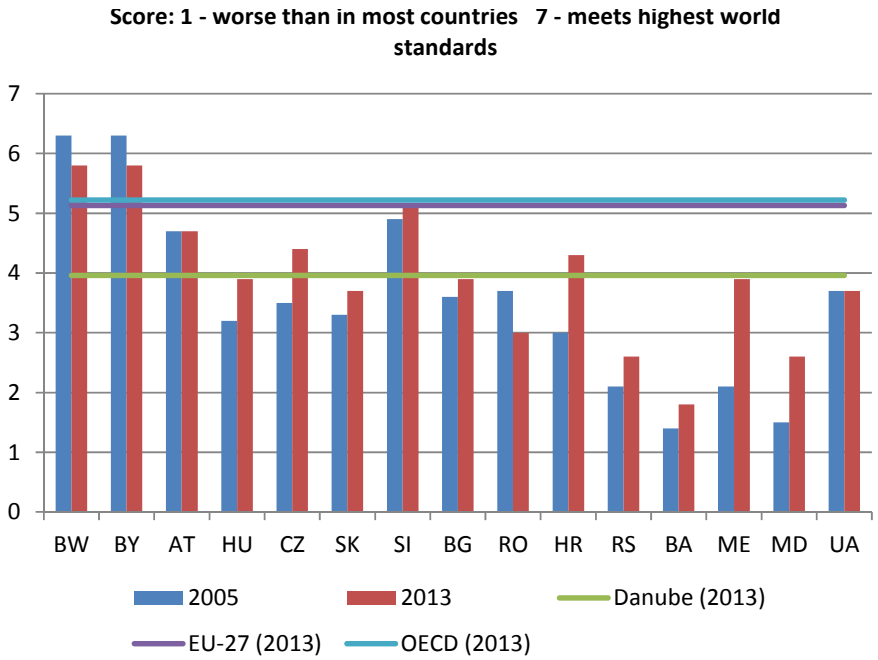
The passenger transport on the Danube River follows a similar pattern as the freight transport, at least until the year 2000 (Figure 66). There is also an observable decline, starting around 1990, and recovering of passenger transport volumes from the mid-1990s onwards. However, at the turn of the millennium, transport volumes started to drop significantly again. The reason for that is the development of faster transport modes (Mihic & Andrejevic, 2012).

Port Infrastructure

In general, the port infrastructure is an important factor in governing the performance of waterborne transport. Compared to the Rhine River, the Danube river ports are on average of lower quality. Within the Danube Region, Germany has the highest quality ports. Interestingly, Slovenia (5.1) is the only other country of the Danube Region which received a higher score than a country of the Rhine region, namely Switzerland (5.0) (which is, however, located at the beginning of the Rhine and therefore not directly on a main route).

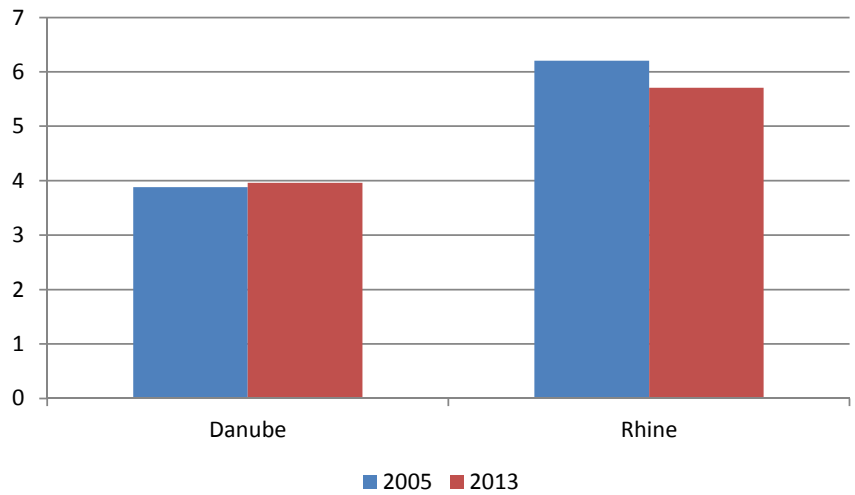
The quality of ports directly influences the competitiveness of waterborne transport in that region (Beškovnik, 2006). Because of monopolistic or at best oligopolistic markets for port operation in the Danube Region, ports are in bad shape and work inefficiently (Beškovnik, 2006). This raises costs of shipment and therefore makes waterborne transport less competitive compared to other modes of transport. Therefore, studies suggest that the port infrastructure in the Danube Region needs to be enhanced, new ports need to be built and monopolies need to be broken up towards a more competitive market. In addition, intermodal transport from and to ports needs to be increased. This would also help the hinterland away from the river (Nedea, Milea, & Pascu, 2012). In order to provide an efficient and sustainable intermodal transport using waterborne transport on the Danube River, the land connections have to be significantly improved in most countries of South East Europe. In particular, railway connections are crucial in this regard. However, a comprehensive analysis of single ports or regions was not possible within the framework of this study.

Figure 67: WEF Port score (incl. benchmarks)



Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 68: Average WEF Global Competitiveness Report Score (weighted by population)



Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Navigability

The navigability of the Danube is not as highly developed as that of other important inland waterways in Europe, such as the Rhine. There are two main reasons for this. First, the Danube River is relatively flat. While the Rhine River has a navigable depth of 3.70 meter, the Danube only reaches 2.50 meter. Therefore, it is not yet possible to operate ships of the same size on the Danube as they are used by inland shipping companies on the Rhine. Likewise, combined sea-river shipping needs a further deepening of the riverbed of the Danube (Tempera, 2010). The deepening and maintenance of the Danube riverbed is, however, a long-term and cost-intensive project (Nedea, Milea, & Pascu, 2012). Second, waterway infrastructure was severely damaged in the course of the political instabilities in the 1990s, especially through the Yugoslav wars. Bridges were destroyed and the Danube was filled up with debris. This lowered the navigable water levels of the Danube River even further (Nedea, Milea, & Pascu, 2012). Therefore, restoration works should be done to clean up the Danube (Nedea, Milea, & Pascu, 2012). At the construction of new bridges, it is of course important to take into account the clearance. Today, some existing Danube bridges cause problems for larger ships (Nedea, Milea, & Pascu, 2012). Moreover, by building canals, distances and bends created naturally could be reduced and, hence, the navigability could be improved. Some parts of the Danube, mostly far downstream, do not have a single canal yet and therefore cause some issues for waterborne transportation (Tempera, 2010).

Fleet and Ship Infrastructure

In a nutshell, the Danube fleet is comparatively old and in a rather bad shape, the ships are small and the crews are not well-trained. These facts explain, for example, why the Danube fleet cannot completely use the Main-Danube Canal and, therefore, one ship cannot easily travel from the Danube via the Main-Danube Canal to the Rhine and farther (Nedea, Milea, & Pascu, 2012). The size of the Danube fleet has constantly increased since 1962, but this increase was not accompanied by a proportional increase in transport volumes. Romania and Ukraine, for example, have the biggest fleets but yet not the highest traffic. This indicates that a lot of inland waterborne traffic is passing by those countries without stopping and suggests that there are too few ports, while

existing ports are in a bad shape (Mihic & Andrejevic, 2012). The worst fleets are, as expected, from the least developed countries of the Danube Region (Mihic & Andrejevic, 2012). Nonetheless, the potential growth of a low carbon fleet is high, because all Danube countries have high potential of biodiesel production (Mihic & Andrejevic, 2012).

Possible growth

From an economic perspective, the Danube River is underutilized and has a large potential to create sustainable transportation in the future (Mihic & Andrejevic, 2012; Tempera, 2010). It is expected that the Danube economies will grow strongly – up to 4% – over the next years (Nedea, Milea, & Pascu, 2012). This means that transport in the Danube Region will also increase over the next years. Transport policy is required to channel the growing demand into a sustainable mode of transportation, for example inland navigation. However, estimates of growth rates of Danube transport are scarce and vary in the literature. One study argues that with proper enhancements in waterborne transportation, waterborne traffic can increase between 3.5% and 6% per year in the long-run, instead of only 1.4% as without those improvements (Nedea, Milea, & Pascu, 2012). Another study states that compared to the 2006 levels an overall growth of up to 170% of inland waterway transport is possible on the Danube River (Beškovnik, 2006).

But what is sure is that by appropriate policies the Danube infrastructure could be sustainably improved. This not only gives the possibility of a sustainable transport growth but can itself enhance economic growth further (Mihic & Andrejevic, 2012).

Ecological Impacts

The water quality of the Danube River is relatively bad. Even though transport intensity was low over the last 20 years, the water quality has been consistently harmed, in particular by industrial effluent. After Vienna downstream, the water quality worsens fast (Mihic & Andrejevic, 2012). An intensification of the inland navigation on the Danube River might aggravate the situation. Of course, replacing road transport by water transport reduces carbon emissions and thus helps tackling global climate change. But increasing ship traffic will increase the local ecological problems of the Danube River and its surround-

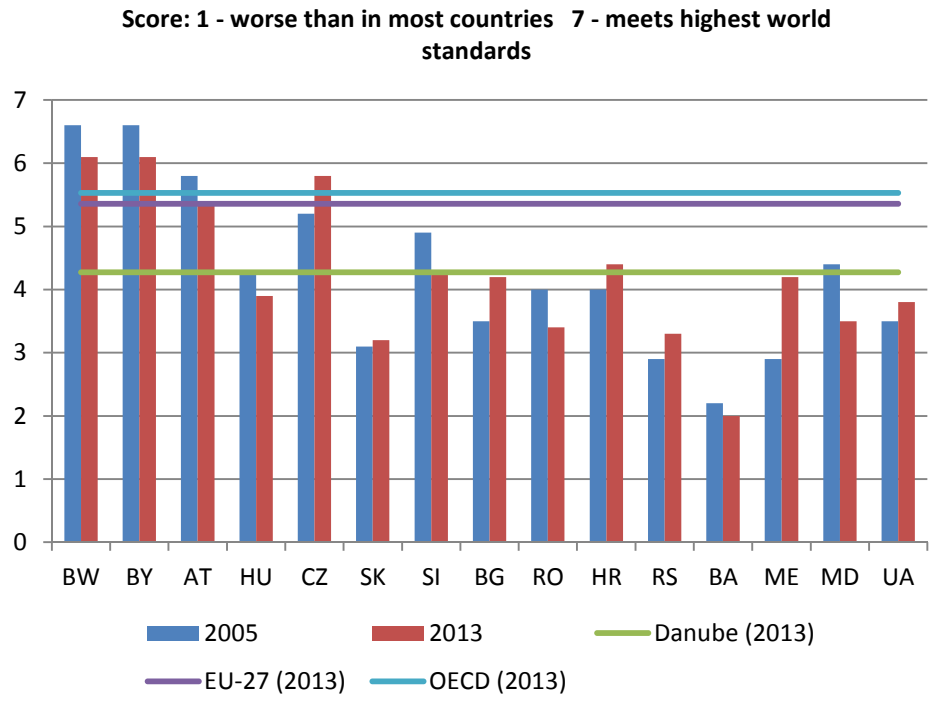
ings (Tempera, 2010; Mihic & Andrejevic, 2012). Therefore, finding the right amount of waterborne transport will be difficult, because on the one hand the overall environmental status will get better but on the other hand the ecosystem of the Danube River can get harmed (Tempera, 2010). In order to fully exploit the economic potential of the Danube River as transport route and at the same time keep its ecological balance intact, it is essential to improve environmental waste management of industrial areas alongside the river, in particular in eastern European countries.

Conclusion Danube River

In summary, it can be stated that the quality of the river and ports need vast improvements. But in principle waterborne transport on the Danube has the potential to manage the growing transport volumes that are expected in that region. For this purpose, however, the river needs to be cleaned up and deepened. This means debris and destroyed bridges have to be removed and the riverbed has to be deepened to be compatible with the Rhine River and river-sea ships from the Black Sea. These would be important steps to enhance economic competitiveness of the Danube Region.

3.4.2.5 Airports

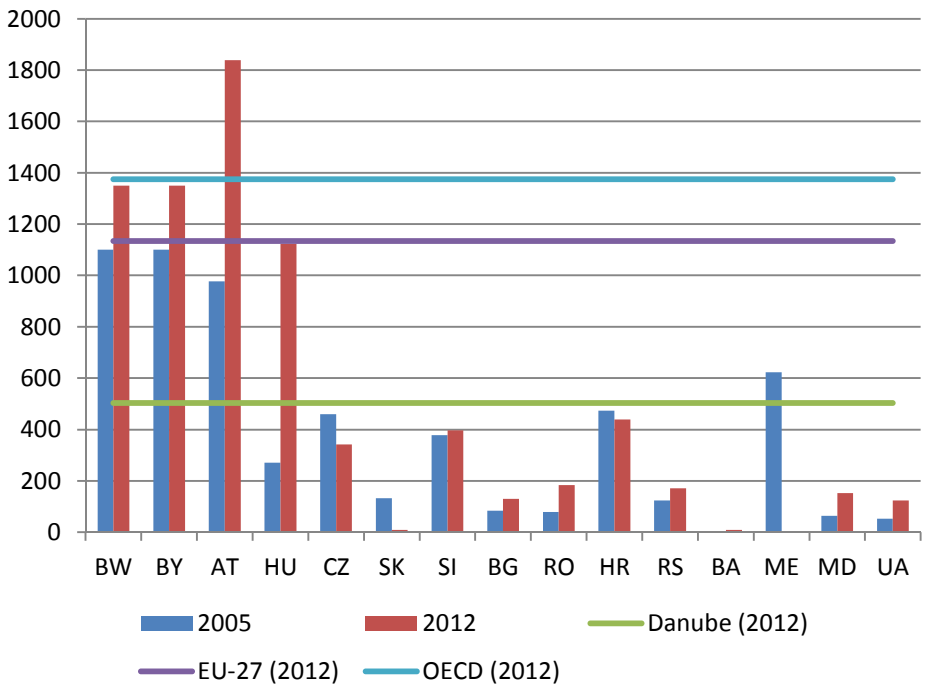
Figure 69: WEF Airport Score 2013



Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 69 shows the Airport score 2005 and 2013 of the WEF Global Competitiveness Report. This figure does not show a clear trend as was observable in the other sectors of infrastructure. Basically, it seems that countries can be categorized into three groups: The high-performing group of Baden-Wurttemberg, Bavaria, Austria and the Czech Republic; the standard-performing group, namely Slovenia, Bulgaria, Croatia and Montenegro; and the low-performing group of Hungary, Slovakia, Romania, Serbia, Bosnia and Herzegovina, Moldova and Ukraine. Between the last to groups though, frontiers are not always clear and well-defined. In 2013, only three countries are underperforming the Danube benchmark by far, namely Slovakia, Serbia and Bosnia and Herzegovina.

Figure 70: People travelling by plane per 1000 inhabitants per year

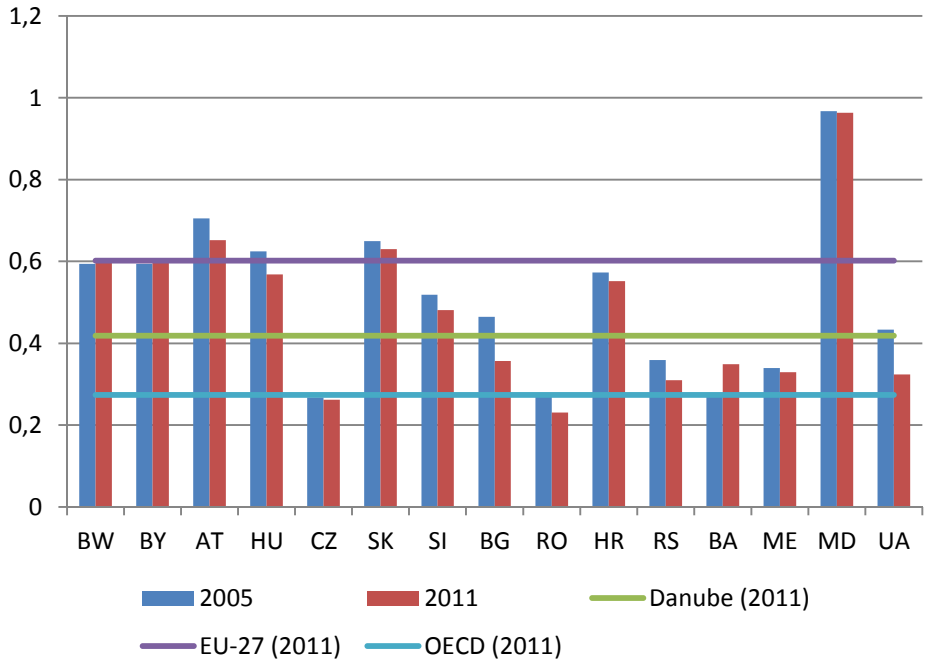


Source: Database of the World Bank (Code: IS.AIR.PSGR, SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 70 shows how many flights a group of 1000 people flew in one year. Even though airport infrastructure is good overall, as shown in Figure 69, Figure 70 shows a totally different picture. The four most western countries have an excessive amount of airplane travellers while about half of the other countries have significantly low amounts of people traveling by plane. Those countries with low amounts of airplane passengers are rather poor, and since traveling by plane is more costly than other modes of transport this could explain the deviation. Even though airport infrastructure seems to be good, people just cannot afford to fly by plane. However companies looking for good airport infrastructure will find it in most of the Danube countries.

3.4.3 Energy and Electricity

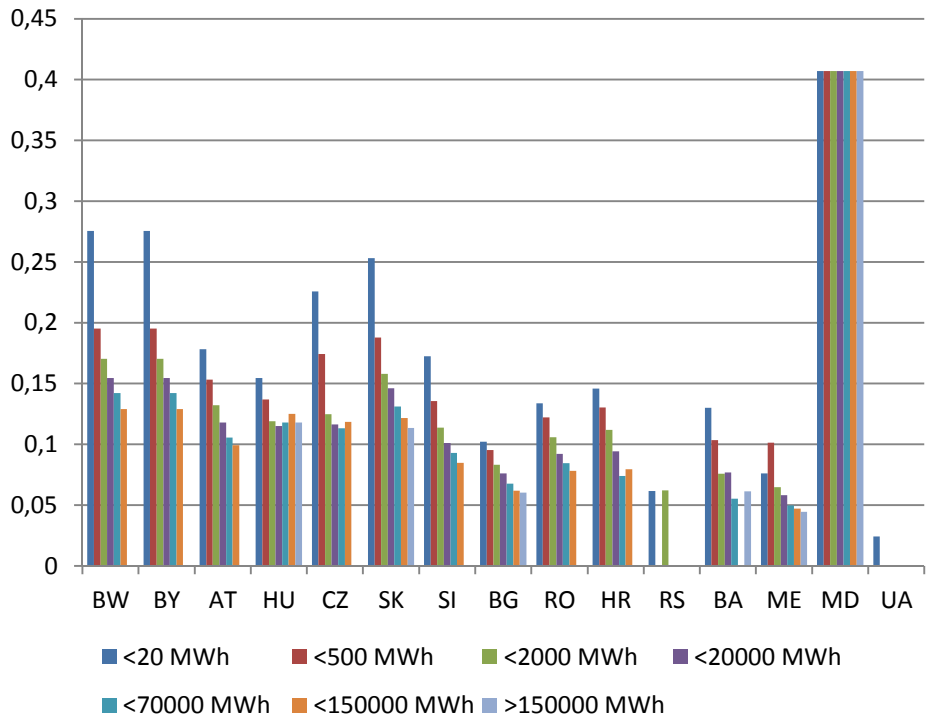
Figure 71: Net energy imports (% of energy use)



Source: Database of the World Bank (Code: EG.IMP.CONS.ZS). Calculation and illustration: ZEW.

The Danube Region is relatively dependent on energy imports as Figure 71 shows. It does not have many natural energy resources, with one exception: Brown coal is still available in most Danube countries. On the electricity market, the Danube Region can be divided between net importers and exporters. But considering that the renewable energies are just on their rise, electricity production still depends on fossil fuels, which have to be imported.

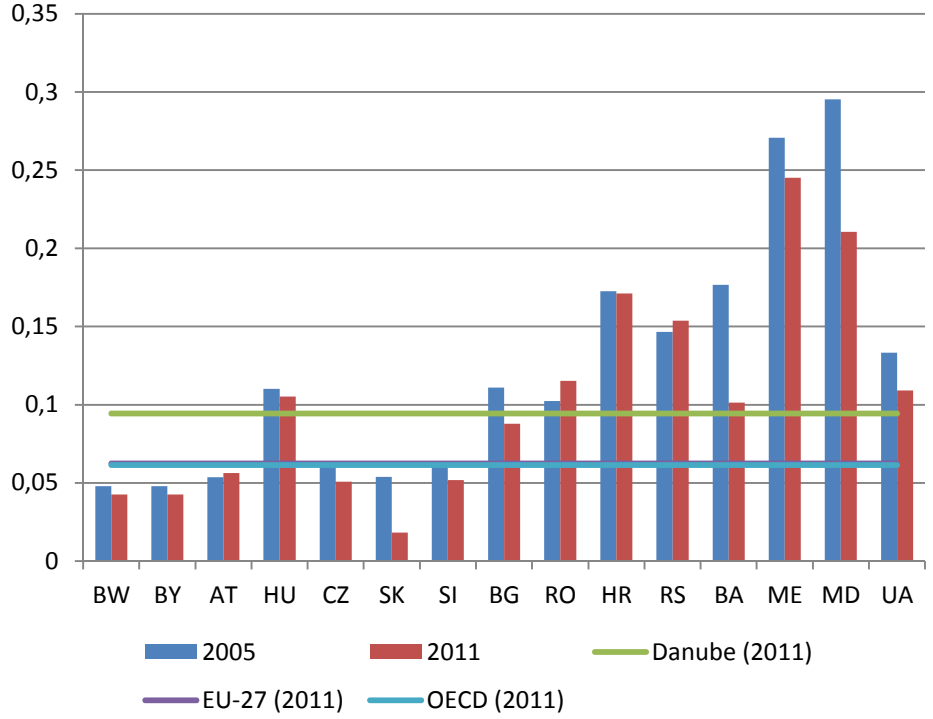
Figure 72: Electricity prices (cent per kWh), all taxes included, in 2012



Source: Eurostat, Energy Agency of Serbia, Energy Agency of Moldova, State Statistics Office of Ukraine. Calculation and illustration: ZEW.

Electricity prices are high in the western parts of the Danube Region. Even though there are more monopoly electricity suppliers in the eastern countries, their prices are significantly lower than those of the western countries. Germany has the highest electricity prices in all categories, but taxes and fees make up a high share of those prices (Annex Figure 158). The Czech Republic and Slovakia also have high electricity prices, even though their taxes and fees on electricity are not as high as in Germany. For the other countries, prices are lower, with an average decline of 5 cents from west to east. Moldova is the only exception. Their high electricity prices are regulated by government. Moldova imports most of their electricity from the Ukraine and is therefore very import dependent.

Figure 73: Electric power transmission and distribution losses (% of output)

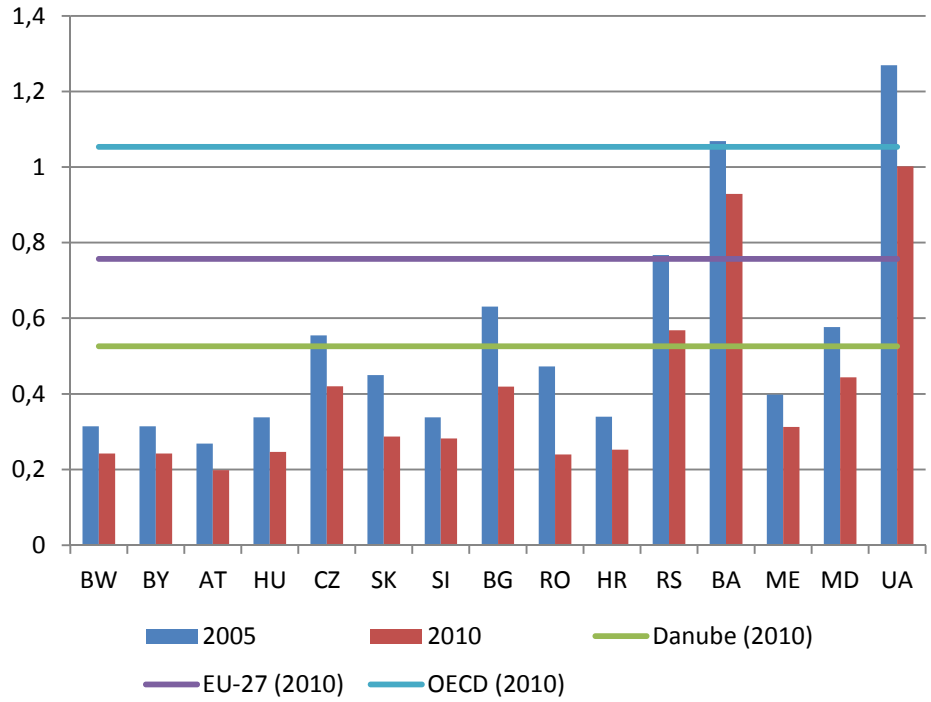


Source: Database of the World Bank (Code: EG.ELC.LOSS.ZS). Calculation and illustration: ZEW.

Figure 73 shows the transmission and distribution losses of the electricity production. This means the percentage of electricity lost on the way to the consumer. Transmission and distribution losses are up to six times higher in the eastern than in the western parts. In the most developed countries of the Danube Region the losses are around 5%. Interestingly, transmission and distribution losses are the highest where the electricity prices are the lowest. The eastern countries of the Danube Region cannot match the OECD benchmark and most of them are also not able to match the Danube benchmark. This is due to the large deviation between the countries. Over the time span 2005-2011, transmission and distribution losses have decreased a little, but in most countries with high transmission and distribution losses it has not changed much. Therefore, transmission and distribution losses in the eastern part of the Danube Region are still high and electricity transmission and distribution is inefficient.

3.4.4 Environmental issues

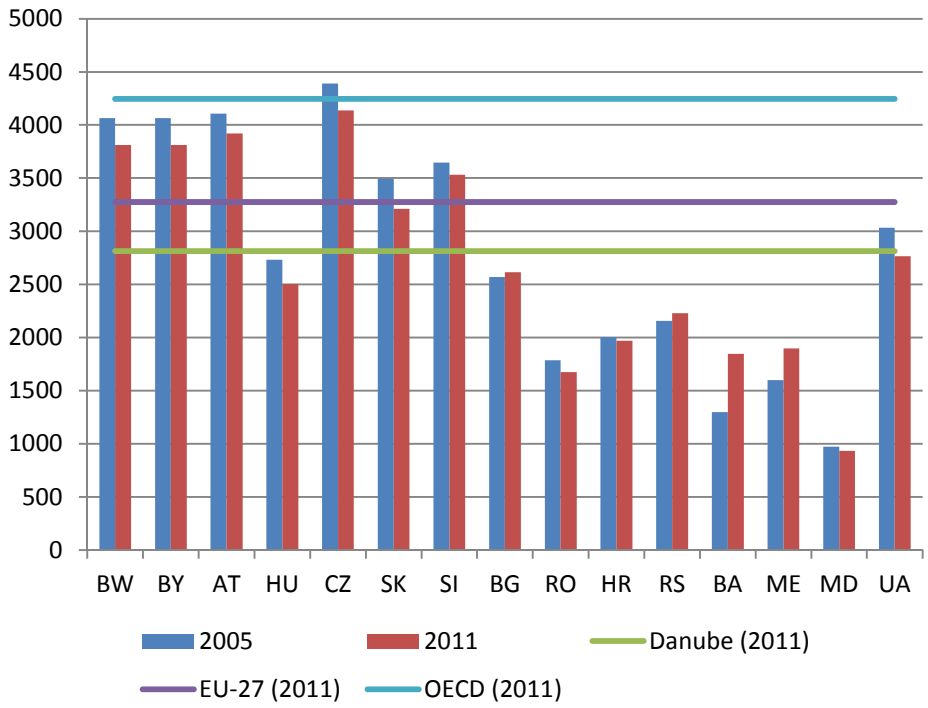
Figure 74: CO2 emissions (kg per PPP $ of GDP)



Source: Database of the World Bank (Code: EN.ATM.CO2E.PP.GD). Calculation and illustration: ZEW.

Figure 74 shows CO2 emissions in terms of kilogram per PPP $ of GDP; that is the CO2 efficiency of the production of GDP, hence an important sustainability indicator. The efficiency levels differ between the most and least CO2-efficient countries by a factor of four to five times. The most efficient countries are in the west of the Danube Region. But there is no general trend towards the east. Some countries such as Slovenia, Romania and Croatia even match the EU-27 benchmark. At the same time, however, countries such as Serbia, Bosnia and Herzegovina and the Ukraine are way above the Danube average for CO2 efficiency. It is important to note in this regard that the significance of this indicator also has its limits. Because the differences in CO2 intensity of production cannot be fully explained by differences in efficiency but also by differences in structure of a country's industry. The more important CO2-intensive sectors are (e.g. metallurgical industry, chemical industry), the higher the CO2 emissions per PPP $ of GDP.

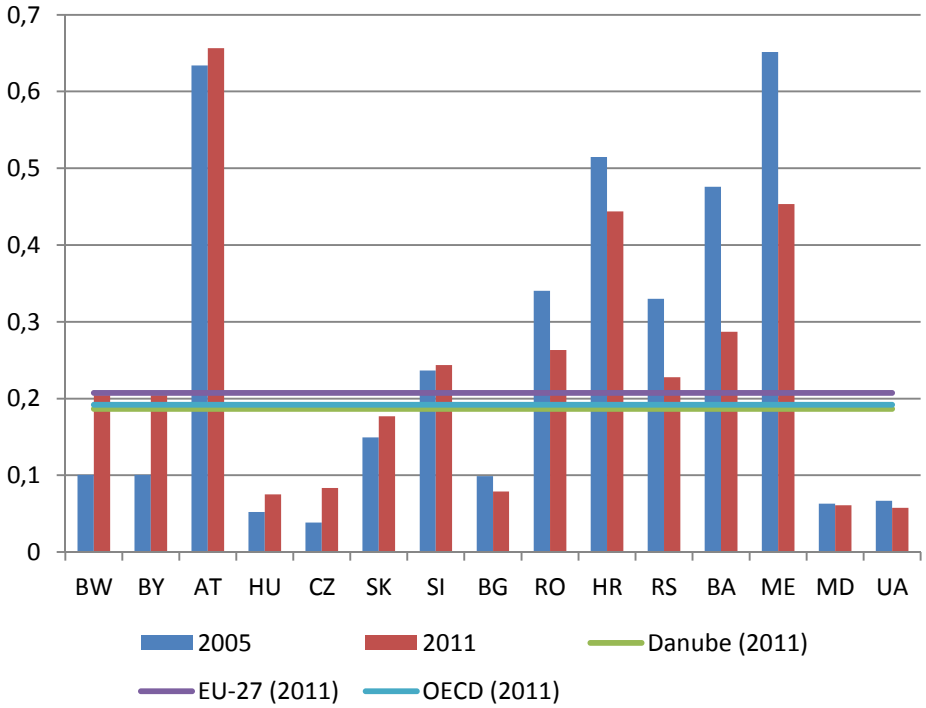
Figure 75: Energy use (kg of oil equivalent per capita)



Source: Database of the World Bank (Code: EG.USE.PCAP.KG.OE). Calculation and illustration: ZEW.

Figure 75 shows the energy use per capita. As expected, the energy use is much higher in the western Danube countries than in the eastern ones. Interestingly, in the high-consuming countries the energy use decreased in 2011 compared to 2005, while in most lower-consuming countries an increase took place. The development of the overall economy, the efficiency of production, and the general living standard are influencing the energy use. Note that, to a greater or lesser extent, these observations also hold for CO2 emissions per capita and electricity use per capita (Annex Figure 161 and Figure 162).

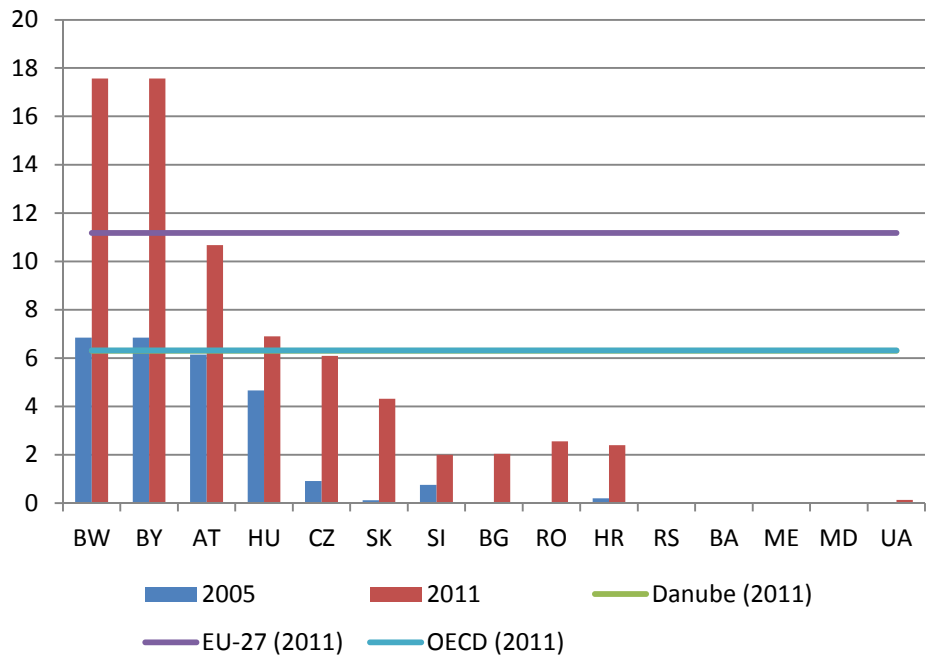
Figure 76: Percentage of renewable electricity production



Source: Database of the World Bank (Code: EG.ELC.PROD.KH, EG.ELC.RNEW.KH). Calculation and illustration: ZEW.

Figure 76 shows the percentage of renewable electricity production in the countries of the Danube Region. About half of the countries already have considerable shares of renewable energy in the electricity production. Only about a third of the countries produce less than 10% of their electricity with renewables. Therefore, with an average of about 20% of renewable energy, electricity supply is already rather climate friendly in the Danube Region.

Figure 77: Percentage of renewable electricity production without hydroelectricity



Source: Database of the World Bank (Code: EG.ELC.RNWX.ZS). Calculation and illustration: ZEW.

Figure 77 shows a somehow different picture. It shows the shares of renewable electricity production without hydroelectric production. Excluding hydroelectric power production gives a clearer picture of the recent efforts and investments in renewable electricity of each country. Only the five most western Danube countries are equal or above the Danube average. Towards the east it falls below 3% of the total electricity production and some countries even have almost 0% of renewable electricity production when excluding hydroelectric power.

In general, the more developed economies of the Danube Region have higher energy and electricity use but also higher shares of renewable electricity production (excluding hydroelectric power). The lower energy and electricity use of the eastern countries is basically linked to their less-developed economies. When these economies will develop further they have to increase their environmental efforts, namely the production of renewable electricity, in order to meet at least today's environmental levels.

4 Entrepreneurship and SMEs in the Danube Region

In this part of the report entrepreneurship and the situation of SMEs in the Danube Region will be assessed. We will analyse business creation, business closure, financing conditions, the regulatory and institutional environment under which SMEs operate and conduct a stock-taking on cluster development. The analysis will make use of various complementary data sets and fully draws on information from on-going projects and activities such as the European Innovation Score-board or the European Cluster Excellence Initiative.

4.1 Entrepreneurship and SMEs

In this part of the report entrepreneurship and the situation of SMEs in the Danube Region will be assessed. We will analyse businesses creation, business closure, firm dynamics, financing conditions, the regulatory and institutional environment under which SMEs operate and perform a stock-taking on cluster development. The analysis will make use of various complementary data sets and fully draws on information from on-going projects and activities such as the European Innovation Scoreboard or the European Cluster Excellence Initiative.

Small and medium enterprises (SMEs) take on a central role with respect to innovation, competition and – ultimately – economic growth in an economy. An assessment of the state of SMEs is thus essential for the development of an adequate strategy for the Danube Region. As innovative activity, which is a key driver of economic growth, is sensitive to the general conditions in which SMEs operate, we analyse these conditions in the following.

Besides entrepreneurship activity in terms of the numbers of start-ups, the regulatory framework for small firms and the attitudes of the population regarding entrepreneurship in the countries of the Danube Region will be analysed. These aspects are important to assess the conditions under which entrepreneurship in the different countries takes place.

4.1.1 Firm dynamics

In scientific literature and political discussion firm births and the development of start-ups are regarded as important for an economy's competitiveness,

innovativeness, its capability for dynamic structural change and its potential to create employment. Especially start-ups in the so called research- and knowledge-intensive sectors (such as R&D-intensive manufacturing and knowledge-intensive business services) implement new technological knowledge and bring it to the market by introducing new products and new services. Additionally, new firms can push existing companies to enhance their own products and services and accelerate the technological change in the economy and its competitiveness in general.

However, as shown below, the fraction of all newly founded firms that are established in the research- and knowledge-intensive sectors is rather small. This does not only hold for the Danube Region but is a more general phenomenon. Though start-ups in the research- and knowledge-intensive sectors are important to stimulate the innovation efforts in an economy, all other start-ups are also essential for economic development and employment creation – simply because of their large number. To assess the state of start-up activities in the Danube Region it is necessary to take both categories of start-ups – start-ups in the research- and knowledge-intensive sectors and start-ups in the other sectors – into account.

Start-up activities represent only one part of firm dynamics. Firm growth and market exits are the other important parts. To assess the dynamics of the enterprise sector it is necessary to also take these aspects into account. However, data for international comparisons of firm growth are more than insufficient. For this reason the analysis will be limited to start-ups and firm closures.

4.1.2 Data sets used

The analysis in this subsection rests on the Structural Business Statistics (SBS) of Eurostat and the Mannheim Firm Panel (MUP).

The SBS is the database on firm dynamics maintained by Eurostat. Among other items of interest it covers the number of firm births, the number of firm closures and the number of active enterprises in the EU member states. The data are available for the EU-27 countries since their respective entry into the EU. As with all other statistics from Eurostat, the data for the SBS are collected by statistical agencies of member states and originate in the national business registers. The national statistical offices collect the data based on internation-

ally harmonised rules for data collection and preparation. The data are available at the sector level. Based on this information firms can be classified into different subgroups according to their sector affiliation.

The SBS provides data at the country level, i.e. information on regions below the country level such as for the German federal states is not available. However, for this project the firm dynamics only in parts of Germany – in Baden-Wurttemberg and Bavaria – is of interest. In order to be able to offer information on Baden-Wurttemberg and Bavaria instead of Germany as a whole we rely on the Mannheim Firm Panel (MUP) of the Centre for European Economic Research (ZEW). The MUP is an extensive micro database of enterprises in Germany. It is based on a cooperation between ZEW and Creditreform, Germany's largest credit agency. Also in this dataset, information on the sector of activity of the firms is available. This information can be used to classify firms according to their sector affiliation as in the SBS. Further information on the MUP is given in the annex.

The analysis in the following will focus on subsectors of the economy in order to say something about the structure of the population of firms and not only about the number of firms as a whole. In particular, we are interested in firms that are started in research and knowledge intensive sectors because it can be expected that these firms are especially innovative. The applied sector classification is given in Table 7.

Table 7: Sector classification

	NACE Rev. 2
Research and knowledge intensive sectors	
High-tech manufacturing	C20, C21, C26-C30
Knowledge intensive services	J, M71, M72, M74, M69, M702, M73
Other sectors	
Mining, other manufacturing, energy	B, C10-C19, C22-C25, C31-C33, D, E
Transportation	H
Construction	F
Other business oriented services	K_X_K642, L, N77, N78, N80-N82
Consumer oriented services	I, M75, N79
Retail	G

The classification has been made according to the intensity of research and development (R&D) and the knowledge intensity which is necessary to produce the products and service supplied. The rationale for using these criteria is that R&D and knowledge are closely related to innovation. This does, of course, not mean that firms in the sectors we label with "other sectors" are not innovative at all or that firms in the "research and knowledge intensive sectors" are innovative in any case. However, the likelihood that a firm is innovative is higher in the sectors we call "research- and knowledge-intensive" than in the other sectors.

As can be seen from Table 7 we do not consider all the sectors of the economy. The firms in the sectors A (agriculture, fishery), P (education), Q (public health), R (Arts, entertainment and recreation), and S (other service activities) are missing. On the one hand, this has to do with data availability. Data on firms in the sector A are not provided at all by Eurostat and information on the sectors P to S are provided only for selected countries. On the other hand, production conditions in the agricultural and the public sector (which makes up most of the sectors P to S) are fundamentally different from the rest of the economy so that it is also advisable for reasons of content to exclude these sectors from the analysis.

As mentioned above, Eurostat provides information for countries that are members of the EU. This in turn means that for countries which are not in the EU no data on firm dynamics is available. This is insofar relevant as not all countries of the Danube Region are members of the EU. To the best of our knowledge at the current state of the project there are no data sources available that can fill in the gaps with respect to the non-EU countries of the Danube Region.[29] Therefore, the analysis on firm dynamics can only be performed

[29] We first thought about using data from the Global Entrepreneurship Monitor (GEM). However, the GEM proofed to deliver too unreliable results on the number of start-ups in another project because of too low numbers of observations. The low number of observations also prevents an analysis by sector. And lastly, regardless of the mentioned problems we would not be able to fill the gaps completely by using the GEM because either the non-EU countries of the Danube region also did not participate in the GEM or they participated for a too short period of time. In effect, we would only be able to include one more country (Croatia). Therefore, we refrained from using the GEM.

on part of the Danube Region. The included countries and regions cover Baden-Wurttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria.

It also needs be mentioned that there is some time lag in the provision of data by Eurostat because the data preparation is rather complex and by now not as routinised as the preparation of, for example, the Gross Domestic Product. In addition, in 2004 a new sector classification (NACE Rev. 2) has been applied to the data which makes it at least difficult to use data before this year. The time span in the analysis therefore covers the period 2004-2010.

And finally: Although the Structural Business Statistics is probably the best source of data we have with respect to international data on firm dynamics, it is still in the construction phase. This has the consequence that not for all EU-countries all data on all variables are available for all years.

4.1.3 Start-ups in the Danube Region

In order to present start-up data for different regions or countries in a meaningful way it is necessary to normalise the numbers. Otherwise differences in start-up numbers can arise simply because the considered regions are of different size. One way to normalise start-up numbers is to calculate start-up intensities. Start-up intensities are defined as the number of start-ups in relation to the working age-population, i.e. in relation to the number of persons between 18 and 64 years, in a certain region. As the working age-population in a certain region can be regarded representing the potential of firm founders, start-up intensities can be seen as a measure to what degree this potential is exploited.

In Figure 78 the development of the start-up intensities in the Danube Region between 2004 and 2010 is depicted. The time series for the Danube Region as a whole and the countries of Member States Area 2 have a missing value in 2008 because the recorded values for the Czech Republic provided by Eurostat

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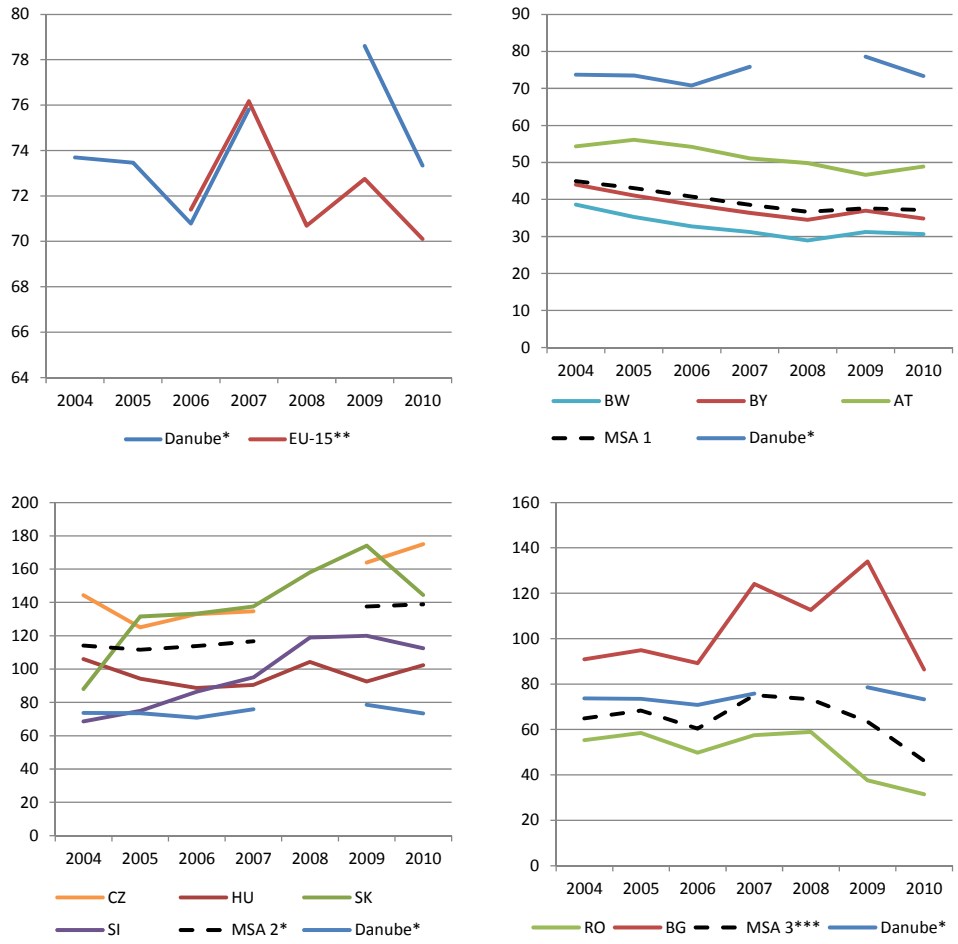
Another data set we took into consideration was the Entrepreneurship Indicators Programme by Eurostat and the OECD. However, also this data set does not deliver information on firm dynamics of the non-EU members of the Danube region.

seem to be implausible for this year. As can be seen from Figure 82 the development of the start-up intensities in the Danube Region resembled that of the countries of the EU-15 between 2006 and 2010. Between 2006 and 2007 the start-up intensities increased and between 2009 and 2010 the start-up intensities decreased. However, while in 2006 and 2007 the start-up intensities were actually the same in both regions (2006: 71 start-ups per 10.000 persons in working age; 2007: 76 start-ups per 10.000 persons in working age) the start-up intensities in the Danube Region were noticeably higher than in the EU-15 countries in the years 2009 and 2010. In the Danube Region 79 start-up per 10.000 persons in working age were erected in 2009 and 73 in 2010 while it was 73 and 70 start-ups per 10.000 persons in working age in the EU-15 countries respectively.

Figure 82 also displays considerable variation in the start-up intensities between the different regions and countries of the Danube Region. The start-up intensities in the countries/regions of Member States Area 1 lay clearly below the average of the start-up intensities in the Danube Region and have slightly but steadily decreased over the period of observation. In contrast, the start-up intensities in the countries of Member States Area 2 all lay above the average of the Danube Region (the only exception being the value of Slovenia in 2004) and also increased between 2004 and 2010. The countries of Member States Area 3 experienced a mix between the development of the start-up intensities in the Member States Area 1 and that in the Member States Area 2. Until 2007 the start-up intensities increased and since then decreased. In total, the start-up intensities in this area lay below the start-up intensities in the Danube Region as a whole. However, the start-up intensities in Bulgaria are above average over the whole period of observation.

Figure 78: Development of the start-up intensities in the Danube Region 2004-2010 – all start-ups



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO. Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Value for 2008 is missing because of implausible value for CZ. **Values for EU-15 without Greece, Denmark, and Ireland because data are either completely missing (Greece) or have considerable gaps (Denmark, Ireland). ***Member States Area 3 without HR because HR joined the EU only in July 2013 so that there is no data available at Eurostat.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

Another way to present start-up data are start-up rates. These rates are defined as the number of start-ups in relation to the stock of firms. They can be regarded as an indicator for the renewal of the stock of firms through start-ups. Figure 79 shows the start-up rates for the countries of the Danube Region

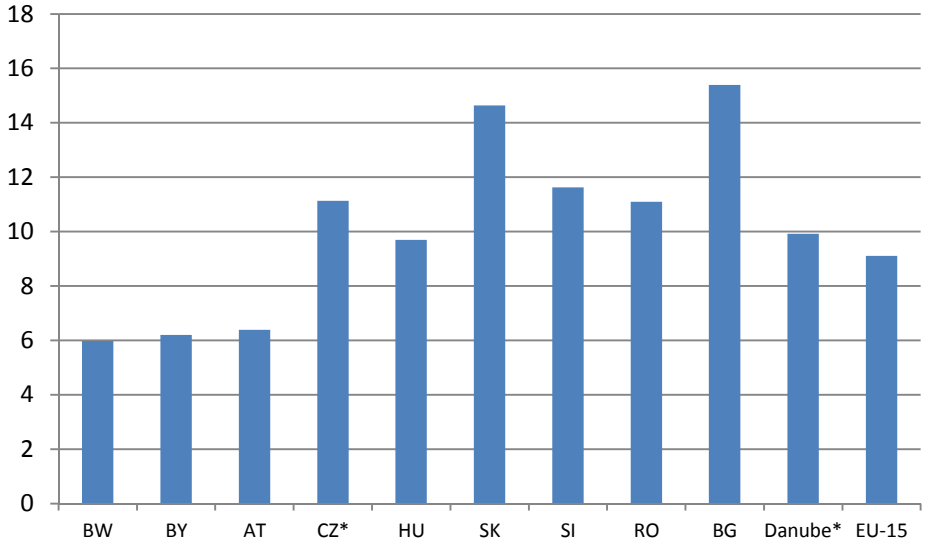
for the time period 2008-2010. Because there is no information on the stock of firms available in the Eurostat data before 2008, this measure can only be calculated for the mentioned years. Unfortunately, exactly these years are the ones that cannot be regarded as "normal" because of the financial and the subsequent economic crisis that hit all countries of the world in this period of time and in particular the EU member states. In order to take account of this fact, we calculated one start-up rate for the whole period assuming that we can take out at least some of the crisis effects thereby reaching at a more normal start-up rate.[30]

What can be drawn from Figure 79 is that the Danube Region as a whole had a somewhat higher start-up rate between 2008 and 2010 than the countries of the EU-15. The start-up rate in the Danube Region amounted to 10% while it was 9% for the EU-15 countries. There are again noticeable differences between the different regions of the Danube Region detectable. The start-up rates in the countries/regions of Member States Area 1 did not vary very much. They were all around six percent. In the other countries considered they were much higher. In contrast to the start-up intensities, there does not show up a particular pattern which distinguishes the start-up rates in the countries of the Member States Area 2 from that of the countries of Member States Area 3. They have all at least the level of the Danube Region as a whole. Particularly high start-up rates appear in Bulgaria and Slovakia (both 15 percent). A possible reason for these high start-up rates is that the stock of active firms is rather low in these countries. This could hold for Bulgaria as in this country the number of firms in relation to its population is indeed relatively low. However, it is unlikely that this is the reason for the high start-up rate in Slovakia as the ratio of active firms and the number of inhabitants is not lower as in the other countries of Member States Area 2. An explanation which is more likely to hold for the high start-up rates in this country is that Slovakia had a flat tax of 19% for personal and corporate income as well as value added

[30] These considerations of course also apply to the start-up intensities. However, for the start-up intensities information for a longer period of time is available which makes it easier to assess the start-up numbers in the crisis years.

at that time which made the country highly attractive for investors and firm founders.

Figure 79: Start-up rates in the Danube Region 2008-2010 – all start-ups (in %)



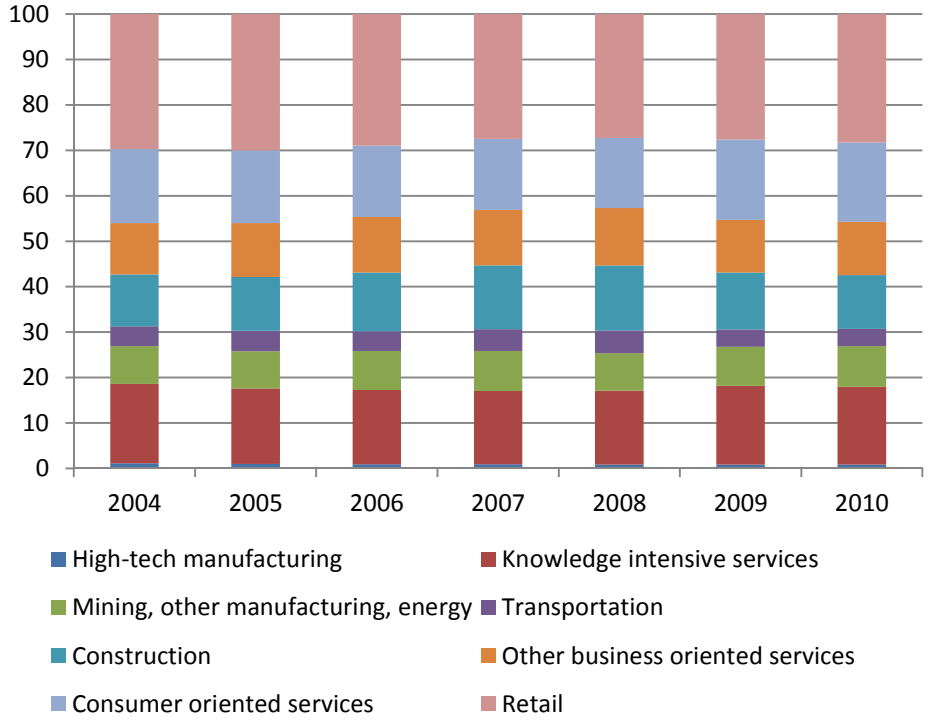
Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values forCZ in 2008.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW),Calculation and illustration: ZEW.

As to the sectorial composition of the start-ups, more than four fifth (between 81 und 83 percent) of the firms that are founded in the Danube Region are started in sectors that we call "other sectors" (Figure 80[31]). Around 45% of the firms are founded in the sectors retail (around 28 percent) and consumer-oriented services (around 17 percent). Another around 37% is set up in the sectors 'Mining, other manufacturing, energy', 'construction', 'transportation' and 'other business-oriented services'. Around 17% of the start-ups can be attributed to the knowledge-intensive services and only 1% of the firms is

[31] In this case values for 2008 can be presented because the implausibility in the 2008 values of the Czech Republic only refer to the height but not to the composition of the start-ups.

started in high-tech manufacturing. This sector composition of the start-ups does not change much, if at all, over time.

Figure 80: Sector composition of the start-ups in the Danube Region 2004-2010 (in %)

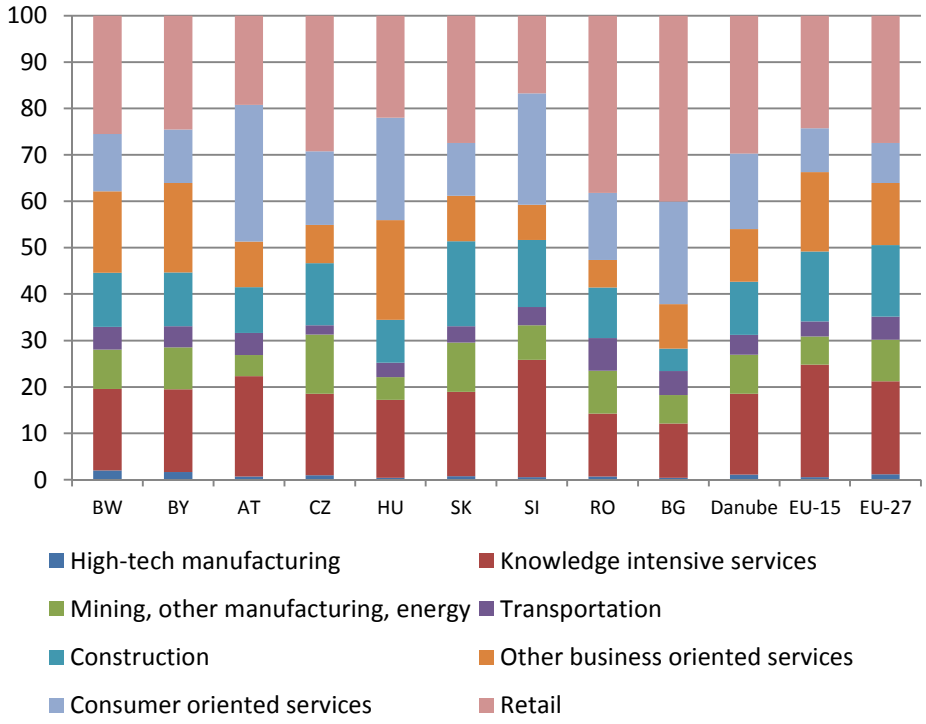


Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. Ba
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

As can be seen from Figure 81, the sector composition of the start-ups in the Danube Regions is not that specific. Also in the countries of the EU-15 and of the EU-27 most of the start-ups are set up in non- research and knowledge intensive sectors and the highest proportion of the start-ups are firms in the retail sector. But still, the proportion of start-ups in the research and knowledge intensive sectors in the Danube Region seems to be a bit lower than in the EU-15 and the EU-27. In 2010 the proportion of start-ups in high-tech manufacturing and the knowledge-intensive services amounted to 18% while it was 25% in the EU-15 countries and 21% in the EU-27 countries.

What also becomes evident from Figure 81 is again the high variation between the countries of the Danube Region. Countries of Member States Area 1 tend to have the highest proportion of start-ups in the research and knowledge intensive sectors, countries of Member States Area 2 lie in the middle and countries in Member States Area 3 have the lowest proportion of research and knowledge intensive start-ups. There seem to be a correlation between the state of economic development and the proportion of start-ups that are founded in the research and knowledge intensive sectors. A noticeable exception among the countries of Member States Area 2 is Slovenia. In this country 26% of the start-ups were established in the research and knowledge intensive sectors in 2010. That is even slightly higher than the respective proportion in the EU-15 countries (and could be a data error).

Figure 81: Sector composition of the start-ups in the countries of the Danube Region in 2010 (in %)



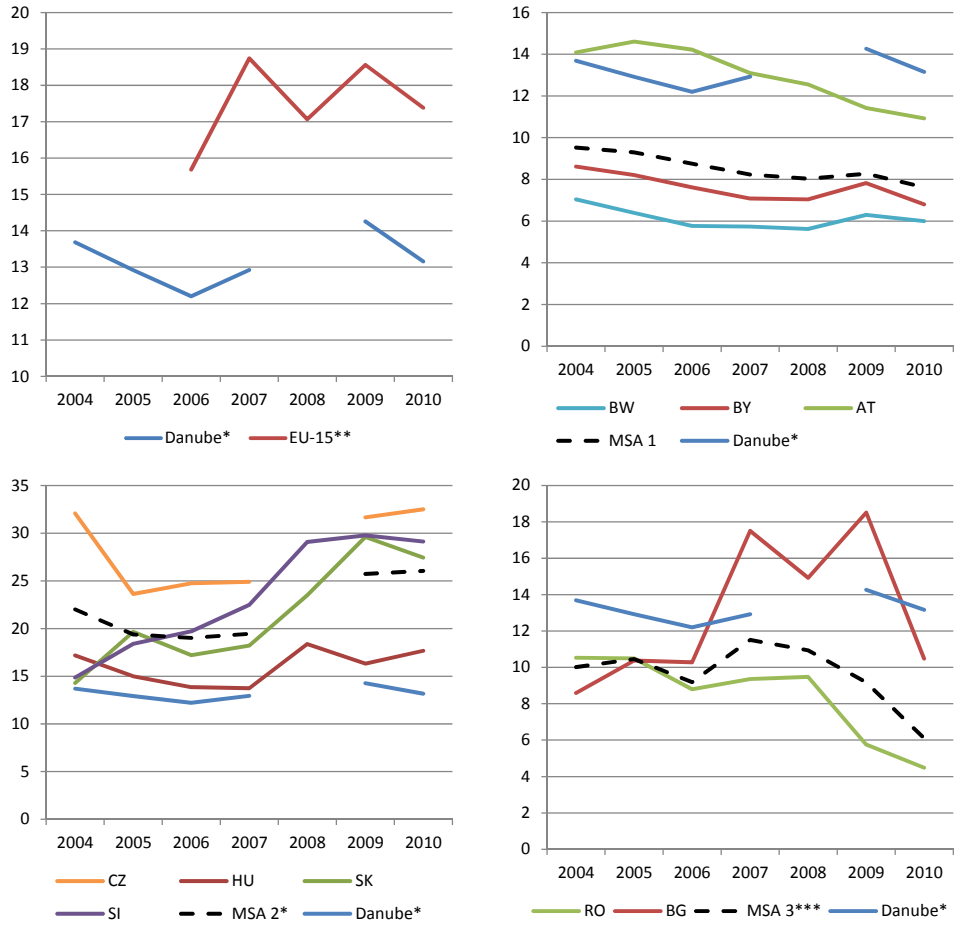
Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

In the countries of Member States Area 3 most start-ups are retail firms or firms in the consumer-oriented services. In Romania 53% of the start-ups in 2010 could be attributed to these two sectors, in Bulgaria it was even 62 percent.

There are also differences detectable with respect to the proportion of start-ups that are established in high-tech manufacturing. In Baden-Wurttemberg and Bavaria around 2% of the start-ups can attributed to high-tech manufacturing while in Hungary and Bulgaria the respective proportion is less than 0.5. In the other countries start-ups in high-tech manufacturing make up around 1% of all start-ups.

If one looks at the intensities of the start-ups in the research and knowledge intensive sectors it turns out that the countries of the Danube Region have lower numbers of start-ups in relation to its working age population than the countries of the EU-15 (Figure 82). Besides that the same patterns as for all start-ups emerge. There is considerable variation in the start-up intensities between the different regions and countries of the Danube Region, the start-up intensities in the countries/regions of Member States Area 1 tended to lie below the average of the start-up intensities in the Danube Region (the exception here is Austria) and steadily decreased over the period of observation, start-up intensities in the countries of Member States Area 2 all lay above the average of the Danube Region and increased between 2004 and 2010, and the countries of Member States Area 3 experienced a mix between the development of the start-up intensities in the Member States Area 1 and that in the Member States Area 2.

Figure 82: Development of the start-up intensities in the Danube Region 2004-2010 – start-ups in research and knowledge intensive sectors (high-tech manufacturing and knowledge-intensive services)



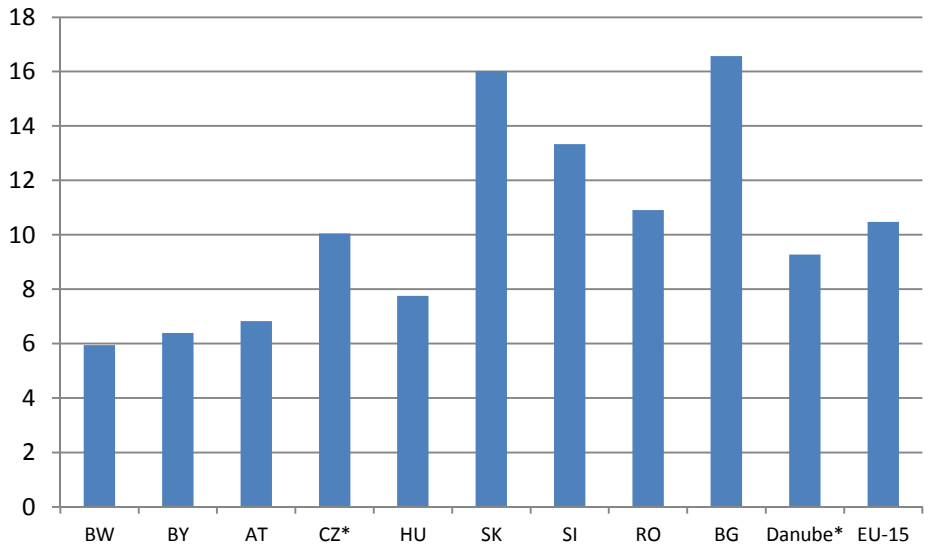
Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Value for 2008 is missing because of implausible value for CZ. **Values for EU-15 without Greece, Denmark, and Ireland because data are either completely missing (Greece) or have considerable gaps (Denmark, Ireland). *** Member States Area 3 without HR because HR joined the EU only in July 2013 so that there is no data available at Eurostat.

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

Also the start-up rate in the research and knowledge intensive sectors is slightly lower in the Danube Region than in the EU-15 countries (9% compared to 10 percent). Apart from that also in this measure of start-up activity similar pat-

terns for all start-ups and for start-ups in research and knowledge intensive sectors emerge. The countries/regions of Member States Area 1 have the lowest start-up rates. The highest start-up rates can be found in Slovakia and Bulgaria.

Figure 83: Start-up rates in the Danube Region 2008-2010 – start-ups in research and knowledge intensive sectors (high-tech manufacturing and knowledge-intensive services) (in %)



Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values for CZ in 2008.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

4.1.4 Firm closures in the Danube Region

Start-up activities are one side of the medal which is called firm dynamics. The other side consists of firm closures. Though it is already a difficult exercise to capture start-ups it is even more difficult to measure firm closures. The reason is that the most common way firms exit the market is by voluntary closure, i.e. by closing the business because of other reasons than insolvency. Whereas insolvency is an event that can be documented quite easily, voluntary closure often is a gradual process with no definite end point because in many countries business owners are not required to deregister their firm when it goes out of operation and they indeed often do not do this (because, for example,

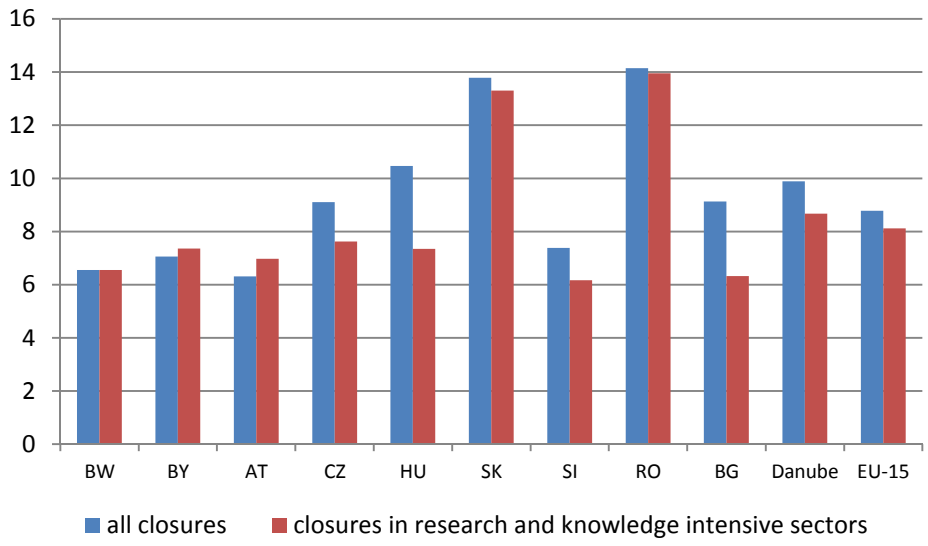
they hope they can reanimate it). While start-ups numbers are available in the SBS from 2004 onwards for most of the countries, information on firm closure is only provided for the years 2008-2010.[32] Applying the same arguments concerning these years as above we refrain from analysing the development of firm closures and only present results for the whole period.

In Figure 84 the closure rates for the countries of the Danube Region are depicted. Similar to start-up rates, closure rates are defined as the number of closures in relation to the stock of firms. In the Danube Region these rates were similar to those for the EU-15 countries both for all closures and for closures in the research and knowledge intensive sectors in the period 2008-2010. In the Danube Region 10% of all firms were closed in that period while it was 9% in the EU-15 countries. The respective numbers for the closures in the research and knowledge intensive sectors are 9% (Danube Region) and 8% (EU-15). Again, we can find noticeable variations between the individual countries of the Danube Region. The lowest numbers of closures in relation to the stock of firms regarding all sectors can be found in the countries/regions of Member States Area 1 and in Slovenia. In these countries the closure rates vary around 7 percent. The countries with the highest closure rates are Slovakia and Romania where around 14% of the firms closed.

Regarding closures in the research- and knowledge-intensive sectors a different pattern emerges. In this case the lowest closure rates can be found in Bulgaria and Slovenia (6% in both countries). Baden-Wurttemberg, Bavaria, Austria, the Czech Republic, and Hungary all had closure rates around 7 percent. The highest closure rates could again be found in Slovakia (13 percent) and Romania (14 percent).

[32] This is also the reason why there is only information on the stock of firms for the years 2008-2010 because the stock of the firms in a given year depends on the numbers of start-ups and firm closures.

Figure 84: Closure rates in the Danube Region 2008-2010 (in %)

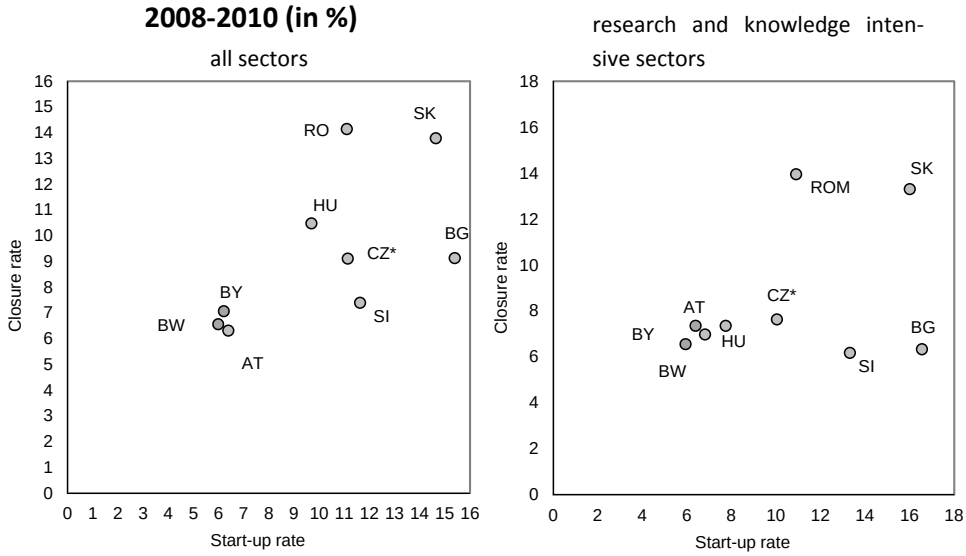


Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values for CZ in 2008
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

4.1.5 Firm dynamics in the Danube Region

In general, high start-up rates tend to go along with high closure rates in the countries of the Danube Region (Figure 85). This is an observation that can also be made for other sets of countries and can therefore be regarded as a general phenomenon. Thus, if one is interested in the development of the stock of firms it is not sufficient to look at start-ups. Firm closures also have to be taken into account. Indeed, as can be seen from Figure 86, the stock of active firms in the Danube Region as a whole has not changed at all in the considered time period. The closure rate has been as high as the start-up rate.

Figure 85: Relation of start-up rates and closure rates in the Danube Region 2008-2010 (in %)

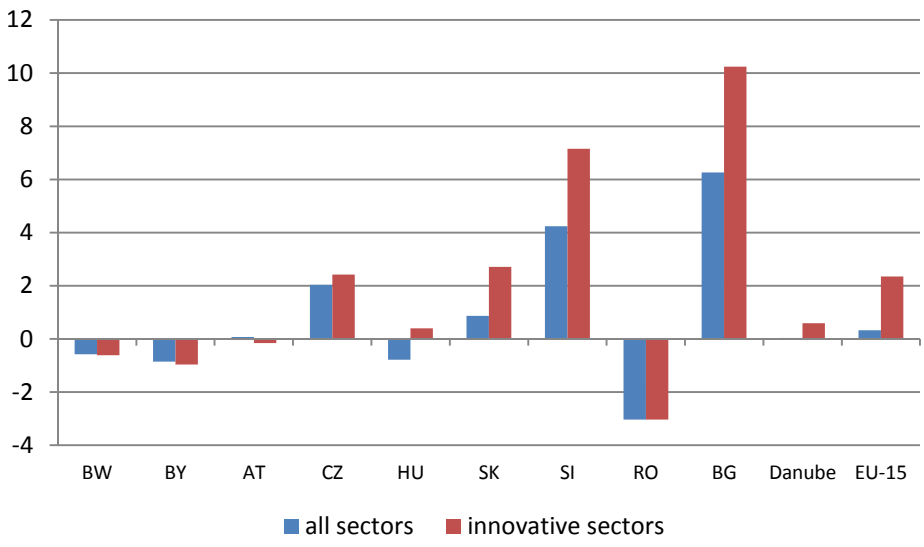


Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values for CZ in 2008.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

However, as with the results before, this does not hold for all subregions of the Danube Region. While the stock of firms seems to be in a kind of equilibrium in the countries/regions in Member States Area 1 (and also in Hungary) there has been stronger fluctuation in the other countries. With the exception of Romania the number of active firms has increased. The strongest increases can be observed for Slovenia and Bulgaria. The rise in the number of firms amounted to 4 and 6% of the stock of firms in the three years between 2008 and 2010.

What can also be observed is that the research- and knowledge-intensive sectors gained in importance both in the Danube Region as a whole and in most of the individual countries as the increase in the stock of firms in the research- and knowledge-intensive sectors is higher than the increase in the stock of firms in all sectors. The highest increase in importance of the research and knowledge intensive sectors has again taken place in Slovenia and Bulgaria. But the relative rise was also noticeable in Slovakia.

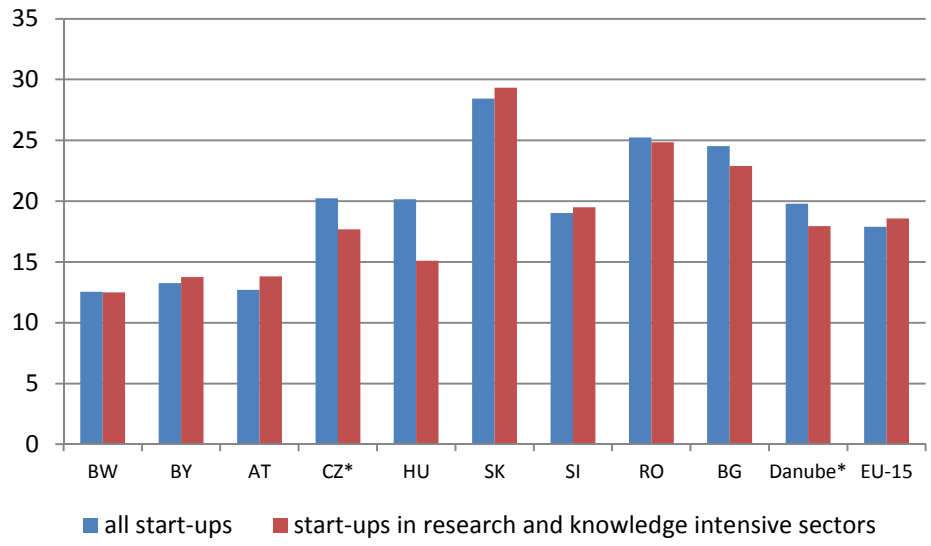
Figure 86: Difference between start-up and closure rates in the Danube Region 2008-2010 (in %-points)



Note: Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values for the Czech Republic in 2008. Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration.

Another measure of firm dynamics is the turbulence which is the number of firms which are started or closed in relation to the stock of firms (or in other words: the sum of the start-up and the closure rates). Figure 87 shows the turbulence in the Danube Region between 2008 and 2010. We again observe the by now familiar differences between the subregions of the Danube Region. In the countries of the Member States Area 1 the turbulence was rather low while there were more flows of firms in the other countries. The highest turbulence can be observed for Slovakia (around 28 percent), Romania (around 25 percent) and Bulgaria (around 24 percent). The turbulence for the Danube Region as a whole resembles those of the EU-15 countries. This holds both for all sectors and for the research and knowledge intensive sectors.

Figure 87: Turbulence rate in the Danube Region 2008-2010 (in %)



Note: The turbulence is the sum of the start-up and the closure rate. Considered countries/regions of the Danube Region: BW, BY, HU, CZ, SK, SI, RO, and BG. *Considered time period: 2009-2010 because of implausible values for CZ in 2008.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW). Calculation and illustration: ZEW.

4.2 SME Financing

SMEs in all countries around the world face a wide range of challenges which are often not faced by large firms. Among these challenges, access to finance is crucial. It can be an issue at all stages of the SMEs' developmental cycle: seed, start-up, growth and expansion. In contrast to large businesses, which have access to equity markets, the vast majority of SMEs does not have such access and is more reliant on other sources such as bank lending or internal funds.

The current economic environment with tightened credit conditions has brought SME needs into the focus of European policy. Taking into account the reduced ability and willingness of banks to provide financing for SMEs, the different financial characteristics of SMEs compared to larger companies and the importance of SMEs for the overall economy and the economic development in Europe, over the past two decades the European Commission (EC) has

developed a comprehensive range of policies, measures and instruments to support financing of SMEs at the different stages of their life.

In this part of the project we start with a review of the existing EU programmes that address SME financing. We discuss the effectiveness of the programmes and show their relevance for the Danube Region. Furthermore, we present an overview of selected international and national programs, which have been implemented or are currently in the implementation process, with the purpose of facilitating SMEs' access to finance.

In the next step we analyse the use of different sources of financing, the financial situation and financial needs of SMEs in the region and compare it to the financial situation and needs of SMEs in the EU. We use information from a variety of published studies and different data sources which are presented in the respective part of the report.

4.2.1 Programs for financial support

A wide range of financial support institutions and instruments at international, national and regional level have been developed to support SMEs at the different stages of their development cycle. Financial support for SMEs has been provided at European level through the financial instruments of the Competitiveness and Innovation Framework Programme, financial support available under the Structural Funds and the schemes supported by the European Investment Bank (EIB) and the European Investment Fund. An overview of the international and national programs addressing financial support for SMEs in the Danube Region is presented in the Annex.

In the Danube Region, the EIB is the most active multilateral financing institution having lent a total of nearly EUR 50bn in the 14 countries of the region as a whole in the period 2007-2011. SMEs have received EIB funding through credit lines to local intermediaries that lend on the money for small-scale capital investment and working capital requirements. The European Investment Fund, the risk financing arm of the EIB Group, supports small businesses in the

Danube Region by means of equity instruments, SME guarantees and financial engineering products.[33]

The following chapter shortly describes the main international and selected national programs addressing financial support for SMEs and presents key points from evaluation studies on these activities.

Entrepreneurship and Innovation Programme (EIP)

Scope in the Danube Region: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Montenegro, Romania, Serbia, Slovakia, and Slovenia.

The EIP's measures are mainly aimed at improving the availability of bank financing to SMEs and the conditions under which it can be obtained. The programme thereby directly addresses what has been identified as one of the major concerns of SMEs in various surveys[34] – the access to finance.[35]

Focusing on one of the core problems faced by SMEs is seen as an important source of the effectiveness of the EIP, the more so as its implementation is geared towards practicability.[36] Thereby, the projected scale and scope of the programme has been achieved with its costs remaining within the originally budgeted amount.[37] Thus, when it comes to cost-effectiveness the EIP can be seen as a success.

Furthermore, other programmes supported under the EIP had a strongly beneficial effect on the business environment, too. For instance, it was estimated that the lowering of administrative burdens under the Community programme

[33] European Investment Bank.

[34] See for instance *SMEs' Access to Finance Survey 2013 – Analytical Report*

[35] *Final Evaluation of the Entrepreneurship and Innovation Programme, p.112*

[36] *ibid, p.105*

[37] *ibid, p.102*

for the reduction of administrative costs would provide a value of € 40bn to European businesses.[38]

There was, however, room for improvement. While the EIP was successful in ensuring a broad availability of funding assistance, its communication was less effective. Not having readily accessible information about alternative ways of financing was identified as an important obstacle to exploiting these by managers of SMEs.[39] Thus, to reach more potential beneficiaries the EIP would have needed to engage in a "more co-ordinated and targeted promotion of the Programme's instruments and results."[40]

Activities supporting SMEs by the European Investment Bank Group

Scope in the Danube Region: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Montenegro, Romania, Slovakia, and Slovenia.

The relatively wide range of Activities supporting SMEs by the EIB includes provision of equity financing, venture capital, and microfinance among others. Thus, even though it also provides loan guarantees, the programme is less geared towards utilising traditional intermediation through the bank channel to employ the EIB's funds but rather emphasises the provision of risk capital.[41]

The programmes for funding assistance by the EIB were highly cost effective in their support to SMEs. The EIB was able to provide allocations to SMEs that exceeded the projected amounts for the years 2008-2011. This allowed the bank to provide significant relief to SMEs by extending the scale of its support far beyond pre-crisis levels.[42] This was particularly important as the financial

[38] *ibid, p.102*

[39] *Studie zur Finanzierung im Mittelstand 2012, p.15*

[40] *Final Evaluation of the Entrepreneurship and Innovation Programme, p.103*

[41] *Fit 4 SMEs, p.39*

[42] *Report on Activities supporting SMEs 2011, EIB Group, p.2*

crisis depleted the capital base and increased risk aversion of traditional providers of outside finance to SMEs, i.e. commercial banks.

Furthermore, the EIB recognised the importance of dissemination of information about its activities supporting SMEs. A monitoring framework was devised which put particular emphasis on ensuring that SMEs had been "individually informed about EIB's support and the benefit received through that support."[43]

Joint European Resources for Micro to Medium Enterprises Initiative (JEREMIE)

Scope in the Danube Region: Austria, Bulgaria, Czech Republic, Germany, Hungary, Romania, Slovakia, and Slovenia.

The initiative aims at providing structured financing solutions to foster SME growth across European regions that have a particular demand for additional funds, whether due to their innovativeness or liquidity dry-ups associated with the European debt crisis.[44]

The initiative's approach to provide risk sharing instruments and guarantee schemes as well as venture capital in order to increase SMEs' access to finance can be deemed a success. For instance, JEREMIE was particularly helpful in revitalising the market for SME loan securitisation after its near shutdown during the financial crisis.[45] Furthermore, due to increasing demand the EIF has repeatedly stepped up the resources it devotes to JEREMIE.[46]

Joint Action to Support Microfinance Institutions (JASMINE)

Scope in the Danube Region: Bulgaria, Germany, and Romania

[43] *ibid, p.2*

[44] *ibid, p.3*

[45] *ibid, p.13*

[46] *ibid, p.8*

With its emphasis on microfinance to foster self-employment, as well as its additional focus on ethnic minorities and social groups that have been discriminated against, JASMINE is designed to fill the gaps left open by larger programmes such as the EIP and the EIB's Activities to support SMEs.

As a part of JASMINE the EIB and its partner banks – who match the EIB's contribution – devote € 50m to promote growth of the microfinance sector in Europe by allocating funding to non-bank Microfinance Institutions, thereby enhancing access to finance for the smallest of SMEs.[47] Furthermore, the EC has launched a Technical Assistance programme under JASMINE that supports beneficiaries of JASMINE funding by providing best practices regarding the institutions' business.

While JASMINE already provides essential services there is plenty of room to extend its scope. Particularly the countries of the Danube Region that have not yet converged to Central European levels of economic development could benefit from this.

Joint IFI Action Plan

Scope in the Danube Region: Bosnia Herzegovina, Bulgaria, Czech Republic, Croatia, Hungary, Montenegro, Romania, Serbia, Slovakia and Slovenia

Recognising that SMEs first source of outside finance are commercial banks, the Joint IFI Action Plan seeks to provide long term funding to the banking sector in Central and Eastern Europe so that the necessary balance sheet adjustments can take place without cutting SMEs access to finance.[48] Moreover, as part of the plan the IFIs assist SMEs with special financial services, for ex-

[47] *JASMINE Flysheet, EIF*

[48] *First Report on the Joint IFI Action Plan for Growth in Central and South Eastern Europe, p.5*

ample trade financing, thereby providing them with essential services geared towards their needs.[49]

The IFIs therefore have committed € 30bn for the second round of the plan from 2012 to 2014 which are disbursed "mainly in the form of long-term loans to the private and public sectors."[50] This presents a significant increase relative to the € 24.5bn that were committed for the first round of the plan in 2009 to 2011 and eventually exceeded by the actual provision of € 33bn.[51] Thus, if the second round will meet equally high demand it is likely to succeed in stabilising the availability of bank financing for SMEs.

Western Balkans Enterprise Development and Innovation Facility (WB EDIF)

Scope in the Danube Region: Bosnia and Herzegovina, Croatia, Montenegro, and Serbia.

Similar in spirit to the activities supporting SMEs by the EIB, the WB EDIF provides equity financing, venture capital and loan guarantees to entrepreneurs in the Western Balkans, but also offers technical assistance to governments in an effort to provide policy reforms. Looking at the bank lending channel, the facility is mostly limited to complementing the (previously discussed) larger programmes' efforts to stabilise bank financing, mainly due to its structure.

However, the Western Balkans is a region of under-developed domestic capital markets where banking is dominated by large non-national Eurozone banks.[52] Unfortunately the afore-mentioned larger programmes such as the EIP and the EIB's activities to support SMEs have not been successful in reviv-

[49] *ibid, p.7*

[50] *ibid, p.6*

[51] *Final Report on the Joint IFI Action Plan, p.5*

[52] SME Policy Index: Western Balkans and Turkey 2012, p.117

ing bank lending across the Western Balkans as private credit growth remained subdued.[53]

Launched in December 2012 with € 140m in initial capital, the EDIF is supposed to leverage up to € 300m in direct allocations to SMEs in the Western Balkans.[54] To achieve this goal, the facility will have to overcome difficulties in disbursement caused by the insufficient development of the financial infrastructure.

Selected National Support Programmes

Support Activities by the Czech Export Bank (CEB) and the Export Guarantee and Insurance Company (EGIC)

In 2009 both entities were selected to receive a significant budget increase to finance new economic support measures aimed at forestalling the detrimental effects of the financial crisis on domestic businesses.[55] As a result the CEB engaged in risk sharing measures such as guarantees to commercial banks financing SMEs and direct investment in factoring companies. The EGIC scaled up its insurance funds for export activities to meet increased demand while allowing for a substantial part of its funds to cover SMEs' selected export activities by differentiating between political and commercial risks, with a deductible of only 5% on the latter.[56] These efforts combined have helped to cover the increased demand for public guarantees and support for financing the exports of SMEs facing an uncertain business environment.

[53] *Ibid, p.116*

[54] *WB EDIF Leaflet*

[55] *Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard, p.88*

[56] *Ibid, p.89*

Hungarian Szechenyi Card Programme sponsored by the AVHGA

From 2002 on the Programme allowed banks to provide SMEs with standardised loans at subsidised interest rates where the standardisation has so far been a major factor driving the success of the Programme as it simplifies the handling of loans for both banks and businesses.[57] Furthermore, it provides borrowers with the often needed flexibility that comes with operating an SME: "The main facility in the Programme is an overdraft loan that requires no tangible collateral."[58] By 2012 the volume of loans supported by the Programme exceeded € 500m.

4.2.2 Sources of financing, financial situation and financial needs of SMEs in the Danube Region

We analyse the sources of financing, the financial situation and financial needs of SMEs in the Danube Region based on a variety of studies such as the World Bank Enterprise Survey reports, the SMEs' Access to Finance – Survey 2013 Analytical Report by the EC, the report on Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard and the report of the FIT4SMEs (2011) project on financial facilities for SMEs. With the implementation of the European Small Business Act (SBA) respective annual country factsheets monitoring SMEs performance are published on the behalf of the DG Enterprise and Industry containing indicators on SMEs' access to finance.

According to the considered studies, the financial aspect is seen as crucial by SMEs in the Danube Region. Missing or difficult access to capital has become the main obstacle preventing the growth and development of these firms. The problem sharpened with the surge of the financial crisis. For many Danube countries it has been mainly a demand crisis, with a drastic drop in demand, started by the end of 2008 and continued during 2009. Due to the decrease of

[57] Ibid, p.123

[58] Ibid, p.123

sales and capacity utilisation, SMEs draw on the already limited internal funds to finance their working capital and increase the level of debt.[59]

When asked in 2009 for the most pressing problem currently facing their firm 17.6% of SMEs' managers in the Danube Region and 16.8% of SMEs' managers in the EU-27 cited access to finance (see Figure 88). According to the managers the access to finance worsened in the Danube Region and improved in the EU-27 in 2011. However, the access to finance seems to improve in the Danube Region in 2013. The percentage of SMEs' managers reporting access to finance as their firm's most pressing problem in 2013 was virtually the same for the Danube Region and EU-28[60] – about 15.4%. The financing problem is placed alongside two other important issues that companies face - competition and finding customers.[61] These results are in line with the Enterprise Surveys conducted by the World Bank which provide evidence that in 2009 about 23% of SMEs in the Danube Region (excluding Austria, Germany and Croatia) identified access to finance as a major constraint.[62]

Generally speaking, loans are the main source of external SME finance and loan schemes, especially guarantees, tend to have a much larger impact in terms of the number of firms affected. Venture capital and similar schemes are much more restricted. Other sources of finance such as private placements, listings on the regulated exchanges or issuing of bonds are not usually available for by far the majority of SMEs. However, there is some research evidence that there is a lack of awareness among SMEs about opportunities in debt capital markets which could be a way to diversify funding sources.

According to the CEE Financial Market Survey conducted by ZEW and Erste Group Bank AG Vienna credit financing is very important for about 87% of the SMEs (see Figure 89). While credit financing is the only available corporate

[59] FIT4SMEs: Financial Facilities for SMEs

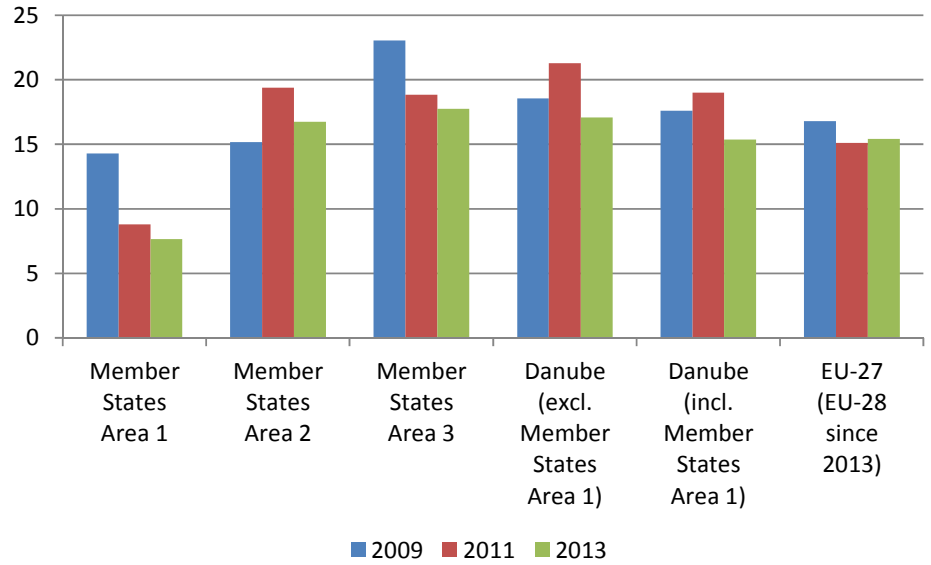
[60] EU refers to EU-27 before 01.07.2013 and to EU-28 (incl. Croatia) since 01.07.2013.

[61] EC (2011) SMEs' Access to Finance.

[62] Enterprise Surveys, The World Bank.

financing option for 66% of the small-caps, only 3.2% of the large-cap companies indicate bank loans as the only available capital source.

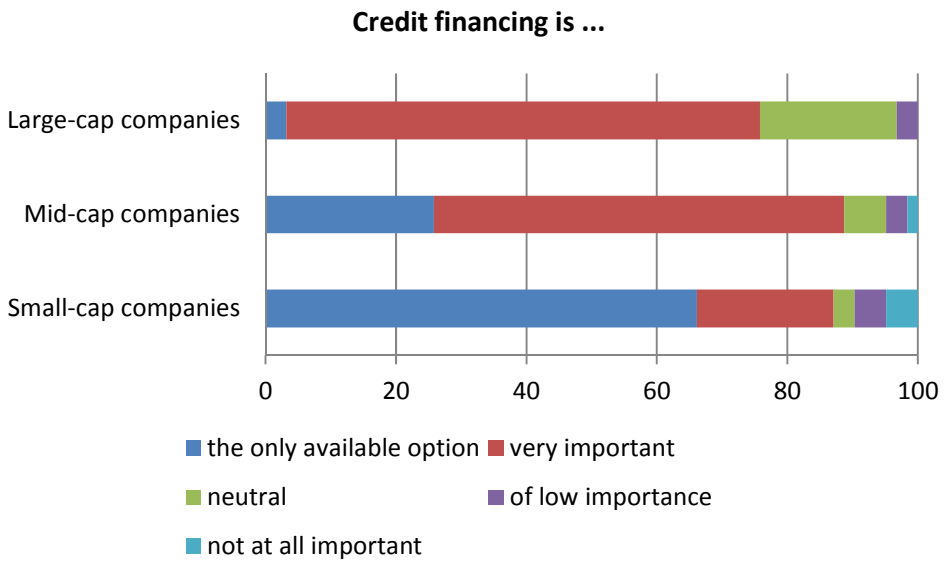
Figure 88: Most pressing problem – access to finance 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

Figure 89: Importance of credit financing



Source: CEE Financial Market Survey, Special Question July 2011. Calculation and illustration: ZEW.

To address the question on how firms finance their operations, we use indicators similar to those presented in the Enterprise Surveys of the World Bank and the SMEs' Access to Finance – Survey 2013 Analytical Report by the EC. The first set of indicators compares the relative use of various sources to finance investment such as internal funds, bank loans and grants. Excessive reliance on internal funds is a sign of potentially inefficient financial intermediation or a limited access of firms to capital.

The second set of indicators measures the use of external financing by individual firms. It presents the percentage of working capital that is financed by external sources to the firm, and a measure of the burden imposed by loan requirements measured by collateral levels relative to the value of the loans. The third set of indicators focuses on the access to external financing as the willingness of banks to provide loans, the terms and conditions of bank financing or the access to public financial support.[63]

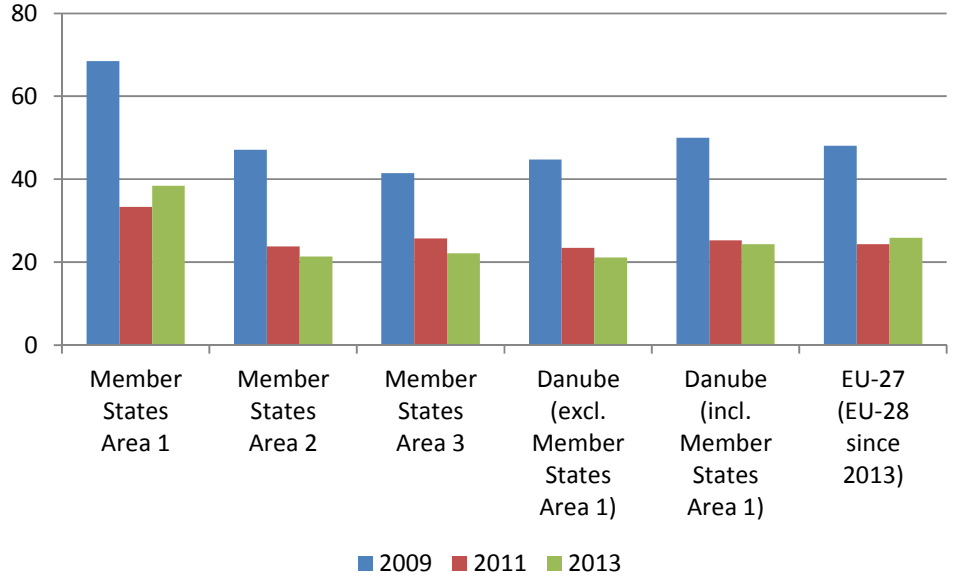
Where possible we compare the indicators for the Danube Region to the EU indicators. A set of selected indicators is presented below.

When looking at the recent sources of financing in the last six months (see Figure 90), SMEs most often used external financing. Only 24% of the SMEs in the Danube Region and 26% of the SMEs located in the EU used internal funds in 2013. Comparisons with the 2009 survey show that there had been a strong drop of the proportion of SMEs using internal funds especially for the Danube Region. In 2009, 50% of the SMEs located in the Danube Region and 48% of the SMEs located in the EU used internal financing.

When focusing on the usage of bank loans the percentage of firms in the Danube Region increased from 40% in 2009 through 55% in 2011 to 51% in 2013 (see Figure 91). The respective development in the EU was much slighter - from 47% in 2009 to 50% in 2011 and 2013. Between 2009 and 2013 the Member States Area 2 and Member States Area 3 experienced the strongest increase in loans – growth levels of 11 percentage points for both groups.

[63] *World Bank Enterprise Survey* report (2013)

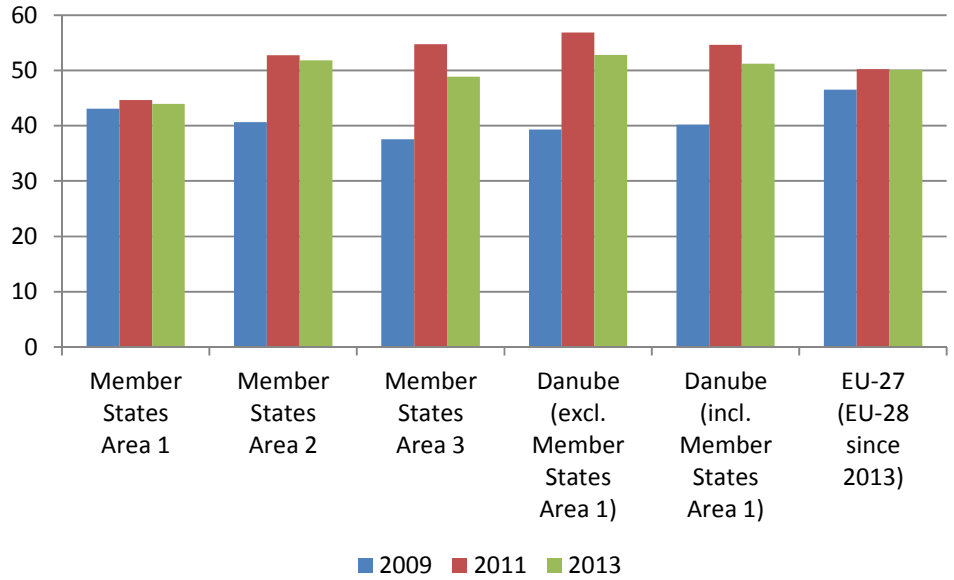
Figure 90: Usage of internal funds 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

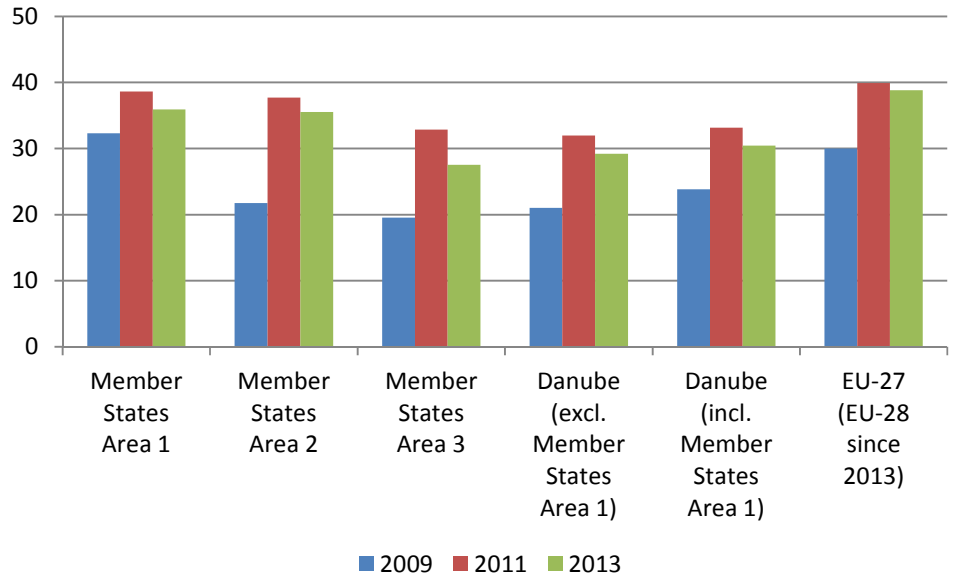
Figure 91: SMEs taking out a loan in last two years 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

Figure 92: Use of bank overdraft, credit line or credit cards overdraft 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

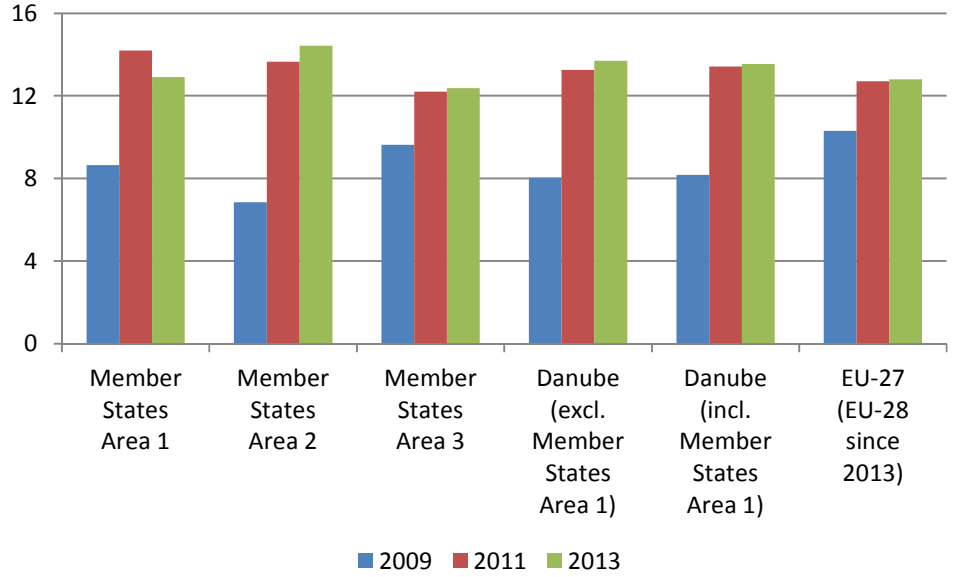
Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

The studies show that there has been an increase in the use of bank overdraft, credit line or credit cards overdraft in the Danube Region and in the EU since 2009 (see Figure 92). In 2013 30% of SMEs in the Danube Region and 39% of SMEs in the EU used bank overdraft, credit line or credit cards overdraft in the past six months which is a significant increase compared to the levels in 2009 (24% in the Danube Region and 30% in the EU).

The use of grants or subsidised bank loans increased from 8% in 2009 to 14% in 2013 in the Danube Region. The respective development in the EU was from 10% in 2009 to 13% in 2013. The countries of the Member States Area 2 achieved the largest increase of SMEs' managers reporting the usage of grants or subsidised bank loans (from 7% in 2009 to 14% in 2011 and 2013).

Although SMEs' financing constraints such as access to public finance and willingness of banks to provide a loan are still among the major challenges facing SMEs' managers, these indicators showed a strong gradual improvement since 2009.

Figure 93: Use of grants or subsidised bank loans 2009-2013 (in %)



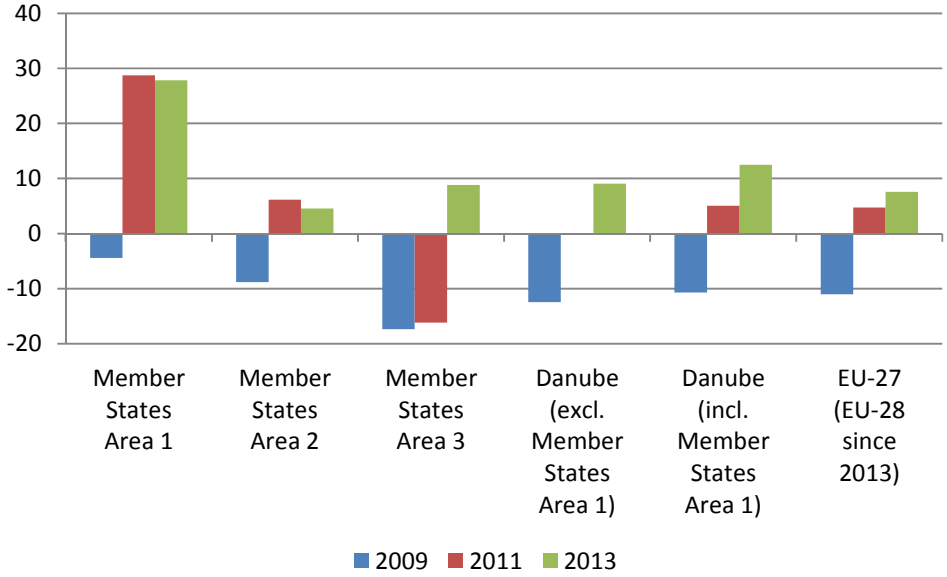
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR;

Source: SMEs' Access to Finance- Survey 2013. Calculation and illustration: ZEW.

While the average size of firms' own capital in SMEs had decreased by 11% in both the Danube Region and the EU in 2009, it increased respectively by 12% and 8% in 2013 (see Figure 94). Based on the data, the growth of firms' own capital is significantly reviving from its negative 2009-values for all Member State groups. SMEs' managers from Member States Area 1 reported in 2013 the largest increase (28%) in firms' own capital.

When asked in 2013 to give an opinion as to whether access to public financial support including guarantees had changed in the past six months (see Figure 95), the overall net balance of opinion for the Danube Region and the EU was that the situation had worsened (-13%). However, there is an improvement compared to the much more negative values in 2009 (-24% for the Danube Region and -20% for the EU). The improvement for the Danube Region is mainly explained by improvements of the indicator in the countries of the Member States Area 3 from -38% in 2009 to -9% in 2013 – the largest increase among all Member States Areas.

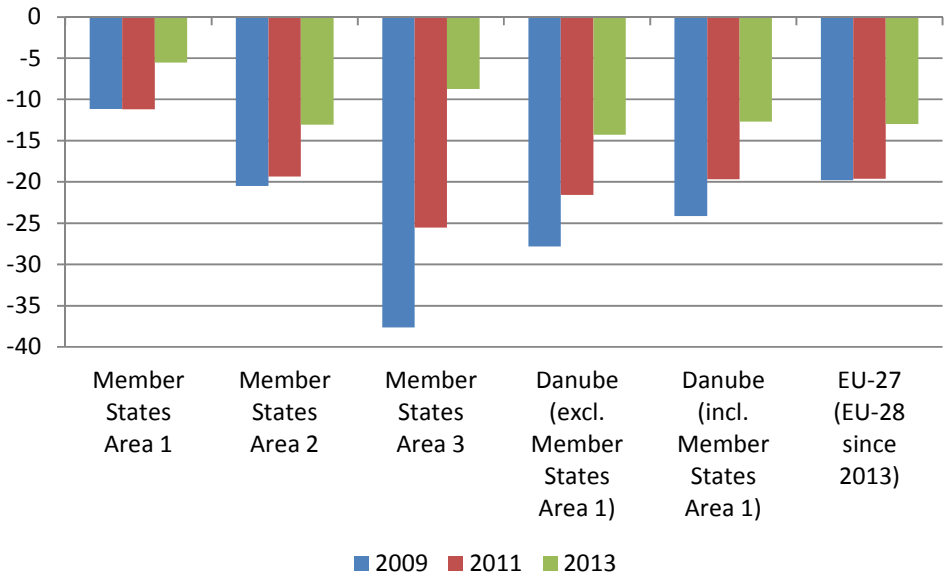
Figure 94: Change of firms' own capital 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

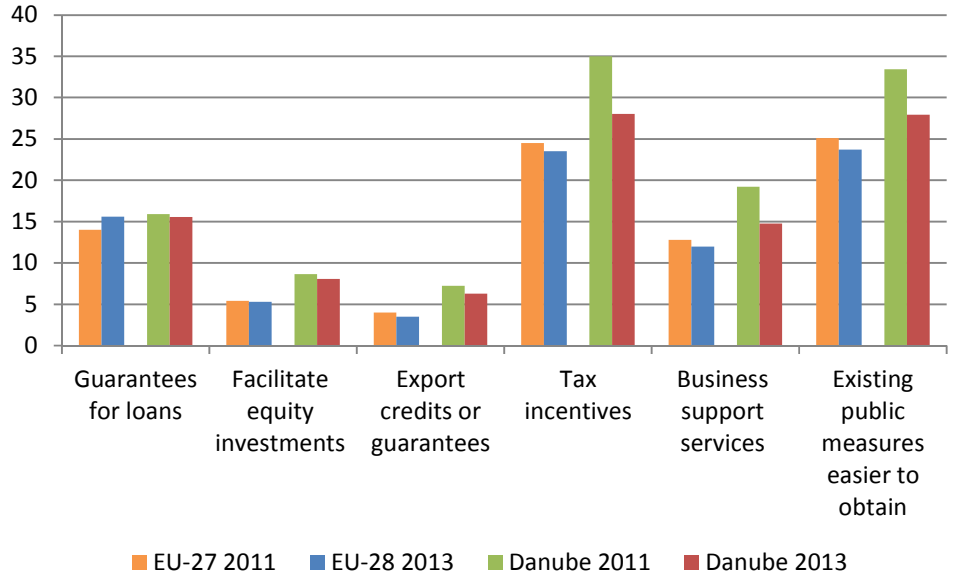
Figure 95: Net change of access to public financial support incl. guarantees 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

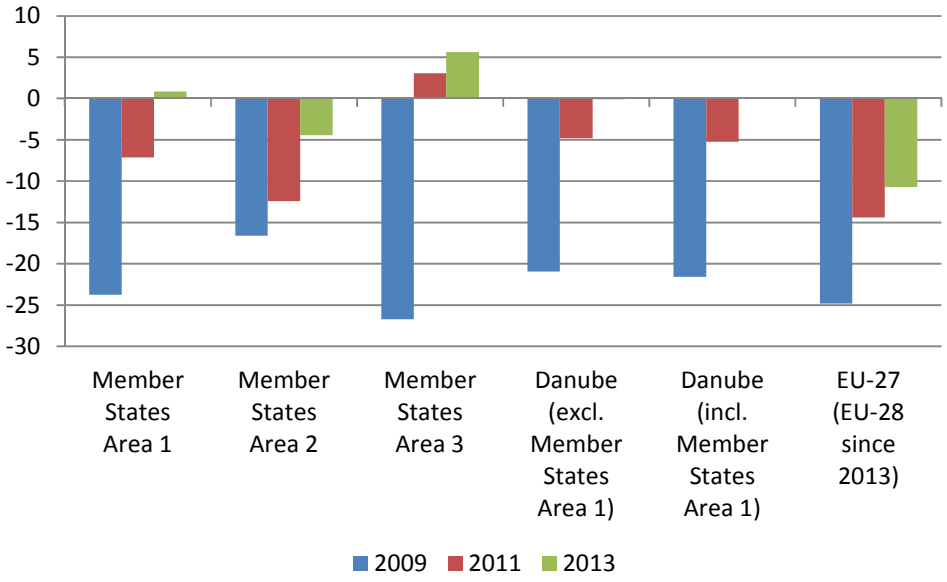
Figure 96: Most important factors for future company's financing 2011 and 2013



Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

In this context, in 2013 managers across the Danube Region and the EU rated "making existing public measures easier to obtain" (for example through the reduction of administrative burdens) and "tax incentives" as the two most important measures, when asked to rate the importance of a number of different mechanisms to help their company's financing in the future (see Figure 96). They were followed by "guarantees for loans" and "business support services". Although there is a reduction in the level of importance of all factors since 2009, more managers of SMEs in the Danube Region than of EU firms consider the factors to be important (except for "guarantees for loans") for both years.

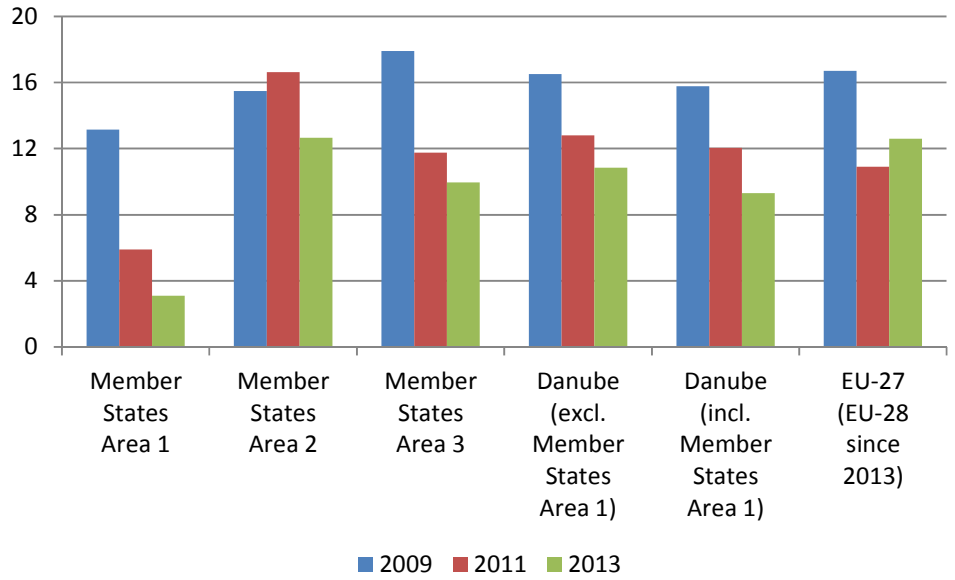
Figure 97: Change of the willingness of banks to provide a loan



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.
Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

For the considered years, the change in banks' willingness to provide a loan was more positive for firms located in the Danube Region (-22% in 2009 and 0.1% in 2013) when compared to firms in the EU (-25% in 2009 and -11% in 2013, see Figure 97). The main contributor to the positive change in the Danube Region in 2013 was the Member States Area 3 with a positive change in the willingness of banks to provide a loan of 6% (a significant increase from its negative level of -27% in 2009).

Figure 98: Rejection on bank loan (new or renewal excluding overdraft and credit lines) 2009-2013 (in %)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR.

Source: SMEs' Access to Finance-Survey 2013. Calculation and illustration: ZEW.

In total, in both years SMEs' managers reported less bank loan rejections in the Danube Region (16% in 2009 and 9% in 2013) in comparison to the EU (17% in 2009 and 13% in 2013) (Figure 98). The largest change was presented by SMEs of the Member States Area 1, where only 3% of SMEs' managers reported their bank loan being rejected in 2013 compared to 13% in 2009.

For the indicators in the database, we used also further data from the above mentioned surveys and from other available studies. These studies provide specific data on the sources and structure of SME financing as well as their experiences with external financing and expectations on future financing. Additionally, regional expert interviews will be held in 2014. The interviews will cover questions regarding the financing needs of SMEs in the region and the perceived barriers to adequate finance.

4.3 Regulation and Institutions

SMEs account for 99.8% of European businesses and for 67% of total employment in the non-financial sector, which makes them the most important

source of job creation. Additionally, they are crucial drivers of innovation and, thus, of long-run competitiveness.

General issues of competitiveness were analysed in Chapter 3.4, while access to finance was discussed in Chapter 4.2. The following chapter looks at the regulatory and institutional environment for SMEs. It first examines the macro level by looking at economic freedom and corruption. The analysis gives a broad picture of the quality of institutions. The second part of the chapter contains a detailed look on the most important aspects of SME-friendly regulation.

4.3.1 Economic Freedom

Economic freedom is an essential precondition for an efficient and functional economy. Countries with a higher level of economic freedom tend to outperform others in terms of economic growth, per-capita income, poverty reduction and overall well-being.[64] Therefore, it is important to assess the current level of economic freedom in the Danube Region. We base our assessment on the "Index of Economic Freedom", an index and ranking compiled by the Heritage Foundation, a conservative think tank, and The Wall Street Journal since 1995.[65] These institutions define economic freedom as a situation in which "governments allow labour, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself".[66] The Index of Economic Freedom includes ten different sub-categories of economic freedom and thus provides a comprehensive perspective. Some aspects of economic freedom, such as property rights or trade freedom are especially important for the performance of SMEs. There are alternative indicators of economic freedom, like the "Economic Freedom of the World" annual report of the Fraser Institute. However, we prefer the

[64] Doucouliagos and Ali (2012)

[65] The use of economic freedom indexes has sometimes been criticized, on the grounds that the indexes include subjective judgments and inconsistencies. See, for instance, Hansons (2003)

[66] The Heritage Foundation (2014), About the Index – Frequently Asked Questions.

Heritage Foundation's measure for two reasons. First, it covers a wider range of countries. Second, it does not use data from the "Global Competitiveness Report", which has been used in other chapters of this report, and thus constitutes an independent data source.

Table 8 gives an overview of the ten sub-categories of economic freedom and an overall score for the whole Danube Region. Regarding the total score, which is the average value of all single indicators, only countries of Member States Area 1 can be regarded as a "mostly free" area. The remainder of the Danube Region is only "moderately free", and Neighbouring Countries are even rated as "mostly unfree".

Table 8: Economic Freedom in the Danube Region 2013

Indicator/Category	Member States Area 1	Member States Area 2	Member States Area 3	Acc. Countries	Neighb. Countries
Property Rights	90	61	37	33	35
Freedom from Corruption	79	47	36	35	26
Fiscal Freedom	58	78	86	87	83
Government Spending	33	38	58	36	40
Business Freedom	86	74	69	62	59
Labour Freedom	56	66	60	68	45
Monetary Freedom	81	80	78	75	72
Trade Freedom	87	87	87	82	82
Investment Freedom	85	73	70	63	28
Financial Freedom	70	68	57	53	40
Overall Score	72 (+1.7)	67 (±0)	64 (+2.8)	60 (+3.5)	51 (-0.9)
Overall Score whole Danube Region:			62.8 (+1.42)		
Economic Freedom Score: 80-100: Free; 70-79.9: Mostly free; 60-69.9: Moderately free; 50-59.9: Mostly unfree; 0-49.9: Repressed					

Notes: Red (-): Decrease in Score since 2009; Green (+): Improvement in Score since 2009. Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Heritage Foundation 2013. Calculation and illustration: IAW.

Concerning the sub-categories, the protection of property rights varies strongly between the Danube states, with a high ranking for the countries of Member States Area 1 only. The level of government spending, which represents the share of GDP allocated by government and not by the market, differs among the Danube Region; a high index corresponding to a low share of government spending is obtained only for the countries within the Member States Area 3.[67] Regarding labour freedom, a measure of the regulatory burden on the labour market, the countries of Member States Area 2 and 3 and the Accession Countries have moderately free markets, while the countries of Member States Area 1 and the Neighbouring Countries have stringent regulation and are therefore rated as less free. By contrast, trade freedom and monetary freedom are guaranteed in all countries of the Danube area.

The changes in the Economic Freedom Index since 2009, the earliest year for which data are available for all countries, suggest that economic freedom in the Danube Region has moderately increased; however, the development differs between countries. The Accession Countries have improved their overall score from "mostly unfree" to "moderately free". The overall score also rose in the countries of Member States Area3. By contrast, economic freedom stagnated in the countries of Member States Area 2, and the Neighbouring Countries even lost nearly one index point from 2009 to 2013, moving close to a rating as "repressed". Thus, we observe a divergence in economic freedom in the EU and Accession Countries, on the one hand, and in the Neighbouring Countries, on the other.

4.3.2 Corruption

4.3.2.1 Data description

There is a variety of definitions of corruption. We follow the United Nations and define corruption as *"an abuse of (public) power for private gain that hampers the public interest*".[68] Although no measurement of corruption is

[67] For detailed information regarding the used data see Annex Figure 18.

[68] United Nations Manual on Anti-Corruption Policy (2001)

universally accepted, three are most commonly used: The “Corruption Perception Index” (CPI) by Transparency International, the “Control of Corruption” by the World Bank and “Irregular Pays and Bribes”, a part of the World Competitiveness Report.[69] Among these data sources, we use the “Control of Corruption" Indicator by the World Bank as our main reference because it includes the broadest definition of corruption and uses the largest number of (methodologically) different sources.[70] In spite of the refined measurement, some caution is needed when interpreting the results. Most of the indicators measure “experienced corruption” as gathered in a survey; thus, the result is subjective and might deviate from the actual level of corruption. Therefore, the exact numbers should not be overstressed, but rather be used to identify patterns and broad differences.

4.3.2.2 Corruption in the Danube Region

Corruption is “one of the most widespread and insidious evils”.[71] According to the EC, around € 120bn each year are lost due to corruption in the EU.[72] While the Danube Region includes countries that are least affected by corruption worldwide, corruption poses a very serious concern for a large part of the region.

Figure 99 contains results from the “Worldwide Governance Indicators” of the World Bank. The values are given as percentile ranks; a percentile rank of 100 means that the country is the top performer worldwide while a percentile rank of 50 means that the country is at the median position (50% of countries are at least as good and 50% are below).

The percentile ranks of the Danube countries vary from just 15 to over 90. The Danube average is far below the OECD and EU-27 averages. The low overall performance is due to the weak position of the Accession and Neighbouring

[69] The correlation between the measures is very strong. see “Global comparative trend analysis” p. 7

[70] United Nations Manual on Anti-Corruption Policy (2001)

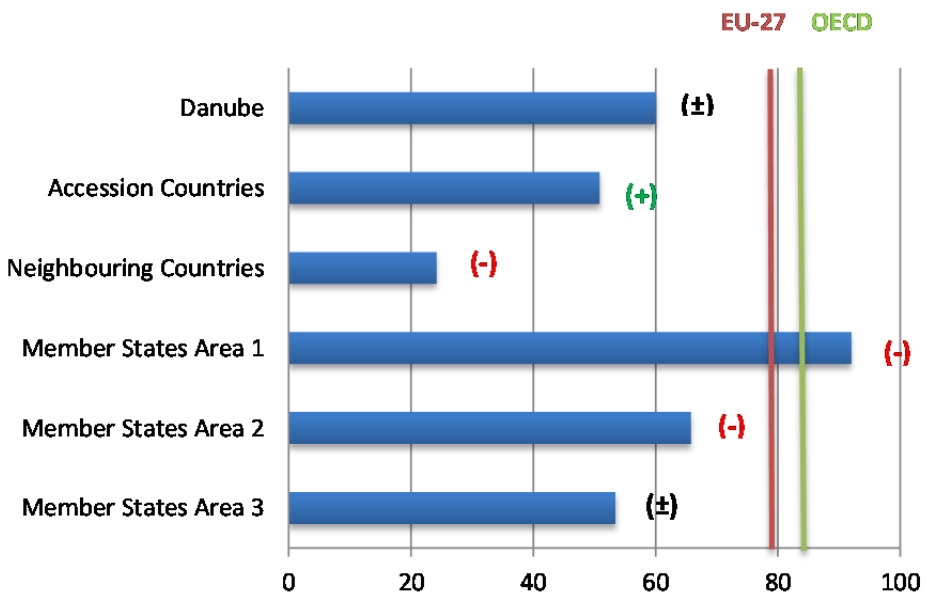
[71] GRECO (2014), The Fight against Corruption: A Priority for the Council of Europe.

[72] European Commission (2014), EU Anti-Corruption Report, p.3.

Countries and the countries of Member States Area 3; their performance is roughly comparable to countries like Kuwait, Tunisia or South Africa and just above the values for Colombia and China. Although, as mentioned before, the precision of the data should not be overestimated, it is evident that the large differences cannot be explained by bad measurement only.

Since 2002, only the Accession Countries have improved their ranking while the average ranking of the other groups has declined. Similar to economic freedom, there is some indication of a divergence between Accession Countries and Neighbouring Countries which are substantially lagging behind all other country groups of the Danube Region.

Figure 99: Control of Corruption for Danube Regions 2012 (percentile world rank)



Notes: Change in comparison with 2002 in brackets. (+) positive development, (-) negative development, (±) no change.
Source: World Governance Indicators (2013 and 2003, referring to the years 2012 and 2002). Calculation and illustration: IAW

4.3.2.3 Corruption and SMEs

While corruption is a business constraint for firms of all sizes, it poses particular problems for SMEs. Indeed, the smaller the size of the firm, the more likely

is it affected by corruption. Small companies tend to be asked more often for a bribe, spend a larger share of their annual revenues for bribes and consequently view corruption more frequently as a "major business obstacle".[73]

Reasons for the more adverse role of corruption for SMEs include the lack of bargaining power to oppose requests of irregular payments, the greater degree of informality in SME structure, a focus on the short as opposed to the long term, limited financial resources and less attention by the public. The most common form of corruption affecting SMEs is bribery, but there are others. Bribery can take place between the private sector or when dealing with the public sector, e.g. to obtain licenses or grants.

In this section, we use the Enterprise Survey (2009) by the World Bank, a survey conducted among manufacturing firms which are, to a large part, SMEs. Data for Germany and Austria is insufficient; hence, we exclude the countries of Member States Area 1 and do not report averages for the whole Danube Region.

Respondents' perceptions (Table 9) vary greatly across the Danube Region. The extent of bribery varies from 4% of companies affected in the countries of Member States Area 2 to 28% in the Neighbouring Countries, with the Accession Countries and the countries of Member States Area 3 in between. A similar ranking is obtained with respect to bribing public officials. All in all, half of the respondents from the Neighbouring Countries identify corruption as a major constraint, which is more than double the percentage obtained in countries of Member States Area 2 and the Accession Countries. It is noteworthy that the countries of Member States Area 3 are trailing well behind not only the countries of Member States Area 2, but also behind the Accession Countries with respect to all corruption measures.

[73] The following results are taken from "Corruption prevention to foster small and medium-sized enterprise development. Volume I", UNIDO, UNODC (2007).

Table 9: Impact of corruption on businesses

Indicator/Category	Member States Area 2	Member States Area 3	Acc. Countries	Neighb. Countries	World
% of firms identifying corruption as a major constraint	21,6 (+7)	34,9 (+5)	24,6	45,6 (+17)	36,1
% of firms expected to give gifts to public officials "to get things done"	9,9 (-28)	19,7 (-23)	13,7	32,7 (-32)	24,4
Bribery incidence (% of firms experiencing at least one bribe payment request)	4,1	11,8	8,5	28,2	18,9

Notes: Red (-): Decrease in Score since 2002; Green (+): Improvement in Score since 2002. Data were not available for Germany and Austria. For Ukraine, the most recent value is from 2008, for Croatia 2007. Values in brackets indicate change compared to 2002; these are reported only if sufficient data was available. Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Enterprise Survey (2009), World Bank. Calculation and illustration: IAW.

Not all of the indicators could be observed in earlier periods. Some improvements were made with respect to the percentage of firms expected to give a gift "to get things done", which has decreased strongly since 2002, in particular in the Neighbouring Countries. However, the share of companies viewing corruption as a major constraint increased during the same period, suggesting that other forms of corruption than bribery are becoming more widespread.

An important conclusion from the literature is that improving the overall business environment of SMEs helps them to withstand corruption.[74] This includes, among others[75], reducing red tape, liberalising trade, improving access to financing and better involvement in public procurement. These issues will be the focus of chapter 3.3.

[74] "Corruption prevention to foster small and medium-sized enterprise development. Volume I", UNIDO, UNODC (2007)

[75] Mungiu-Pippidi, Alina (2013)

4.3.2.4 Anti-corruption policies

Good governance has become a focus not only in developing countries but all over the world and many countries have engaged in initiatives to combat corruption at the national and international level. At the international level, an important step was the "United Nations Convention against Corruption" (UNCAC)[76] adopted in 2003 and signed by all Danube countries. Until now it has been ratified by all but the Czech Republic and Germany.[77] Additionally, the OECD members have signed the "OECD Recommendation for Further Combating Bribery of Foreign Public Officials in International Business Transactions" in 2009. These initiatives acknowledge that corruption is a multidimensional phenomenon that requires cooperative action and consultation.

At the European level, a major step was the setting up the "Group of States against Corruption" (GRECO) in 1999, which currently has 49 members including all Danube countries. The GRECO mainly works by setting European norms and standards, initiating technical co-operation programmes, monitoring the compliance with the standards and offering capacity building to individual countries and regions. Apart from that, GRECO has launched information campaigns and offers legal advice, implemented special anti-corruption projects, and strengthened institutional mechanisms as well as civil organisations. According to the GRECO evaluation report, the overall compliance was satisfactory. By 2012, 78% of member states had fully adopted the recommendations and 98% had at least partly adopted them.[78]

In 2011, the EC launched an initiative to monitor the progress made on reducing corruption by means of an "EU Anti-Corruption Report". The first report will be published later in 2013 and will give a reflection of the achievements, vulnerabilities, and commitments of all member states including their weaknesses that need to be addressed.

[76] UN General Assembly resolution 58/4 (2003)

[77] UNODC (2013), United Nations Convention against Corruption.

[78] Greco: Thirteenth General Activity Report (2012)

Some countries take also part in regional initiatives like the "Regional Anti-corruption Initiative (RAI)"[79], a framework to tackle corruption in South-Eastern Europe. Seven out of the nine members are part of the Danube Region: Bosnia and Herzegovina, Bulgaria, Croatia, Moldova, Montenegro, Romania and Serbia. Additionally, Ukraine also takes part in the "OECD Anti-Corruption Network for Eastern Europe and Central Asia (ACN")[80] which, with the "Istanbul Action Plan", has set guidelines to coordinate action against corruption.

Still the feedback from these initiatives is mixed. While obviously plenty of actions have been taken, not all evaluations are positive and many stress the need to intensify policy effort. The EC stated that:

"The implementation of the anti-corruption legal framework remains uneven among EU Member States and unsatisfactory overall. The EU anti-corruption legislation is not transposed in all Member States. Some countries have not ratified the most important international anti-corruption instruments. More importantly, even where anti-corruption institutions and legislation are in place its enforcement is often insufficient in practice."[81]

Similarly the RAI Report states that "*despite considerable progress, the current situation is still challenging. In some cases, institutions/agencies are very recently established or under process of being established; in other cases, national systems still present several loopholes and weaknesses. Since the European Report on Corruption is not yet published, until now for most countries we are interested in there lacks a clear way to assess the effect of these policy efforts. This holds true especially since the guidelines in the various programmes do not formulate any quantifiable targets*."[82]

[79] Before 2007 named „Stability Pact Anti-Corruption Initiative (SPAI)"

[80] OECD (2013), Anti-corruption Reforms in Eastern Europe and Central Asia – Progress and Challenges, 2009-2013.

[81] Brussels, 6.6.2011 COM(2011) 308 final

[82] Rules and experiences on integrity issues (2012)

The evidence presented in this chapter does not point to noteworthy improvements in the control of corruption. However, considering that many initiatives have been started only recently, this negative finding may be due to the fact that the actions need more time to unleash their full effects.[83]

4.3.2.5 Conclusion

Corruption is a serious issue for at least a part of the region. This has long been recognised and addressed by policymakers, but national policies have proved to be insufficient. Recently, the issue is also systematically addressed at a supranational level. Although much effort has been taken, there is no clear evidence of an improvement yet.

4.3.3 Regulation for SMEs

Due to their importance for the Danube economy, responsive regulation should address the most pressing issues for SMEs.

A central policy concern in this area is cutting "red tape". A literature survey by the EC estimated that the regulatory burden in terms of cost and time for SMEs is 4 to 10 times higher than for large companies.[84] This can lead to competitive disadvantages, both in comparison with larger firms, which can bear the administrative burden more easily, and with foreign firms, producing in countries with less complex requirements. The aim of SME regulation should be to minimise this burden.

One major advance in this respect was "The European Charter for Small Enterprises" in 2000 which committed the member states to the implementation of ten principles[85] easing the regulatory and legal environment for SMEs. This engagement was extended to the "Small Business Act for Europe"[86] in 2008

[83] Corruption indicators, especially those based on perceptions, typically change very slowly over time. See „A Users'Guide to Measuring Corruption" UNDP (2008).

[84] „Models to reduce the disproportionate regulatory burden on SMEs" (2007).

[85] European Charter for small enterprises.

[86] Brussels, 25.6.2008COM(2008) 394 final.

and incorporated in the general "Europe 2020"[87] strategy. Croatia, Montenegro, Bosnia and Herzegovina and Serbia joined the Act in 2003.[88] With the "Eastern Partnership"[89] programme launched in 2009, Moldova and Ukraine, and thus the complete Danube Region, also take part in the programme.

Subsequently, all countries have developed own strategies for the implementation of these principles. The main question therefore is which effect the policies have had up to now and where there is still need for improvement.

In the final version of the study, we will analyse the regulatory efforts in the region with special regard to these supranational frameworks. As laid out in the tender report, we will analyse conditions for market entry and burden of bureaucracy, restrictions on foreign trade, strength of intellectual property rights (namely patents), labour regulation (e.g. employment protection), and participation in public procurement. While we have collected most of the data, we are still working on the research of legislative developments. In this report, we only present the first part regarding market entry.

4.3.3.1 Market Entry

The Danube Action Plan demanded "to prioritise the effective implementation of measures provided for under the Small Business Act for Europe."[90] It refers specifically to "administrative simplification for starting a business, for obtaining business licenses or for filing for bankruptcy"[91], which is part of Principle IV "Responsive Administration". A description of all policies realised goes beyond the aim of this report and has been done elsewhere.[92] The most important

[87] Brussels, 3.3.2010 COM(2010) 2020

[88] „SME Policy Index: Report on the Implementation of the European Charter for Small Enterprises in the Western Balkans" (2007) p. 14

[89] Communication from the Commission to the European Parliament and the Council - Eastern Partnership {SEC(2008) 2974} /* COM/2008/0823 final */

[90] Brussels, 8.12.2010 SEC(2010) 1489 final, p.68.

[91] Brussels, 8.12.2010 SEC(2010) 1489 final, p.68.

[92] European Commission (2014), DG Enterprise and Industry or World bank (2014), Doing Business, Business Reform Summaries.

reforms are the implementation of one-stop shops,[93] reducing registration fees, promoting eGovernment to make information and registration accessible online, using single identification numbers or applying the silence–is-consent principle.[94] The aim is to make the process of registration less complex and require overall less time and money.

The following analysis is based on the progress reports by the EC.[95] As for the licensing process, the EU set concrete aims "to reduce the start-up time for new enterprises to 3 days and the cost to €100 by 2012" as well as to introduce fully functional “one-stop shops”.[96] Table 10 shows the number of countries fulfilling these objectives in 2012.

Unfortunately, the exact and updated data is not yet available for all countries.[97] However, taking the data for what it is, we can see that in each category roughly half of the countries have completed their objectives (For individual country performances see Annex Table 22). Partial fulfilment is not counted in the table; for instance, all Danube countries have introduced some sort of one-stop shop. The requirement is still regarded as not met for some countries because the agency does not fulfil all functions or is limited in its geographic scope.

[93] One-stop-shops are special agencies where entrepreneurs can file all documents necessary for company registration in a single place.

[94] “SME Index Western Balkans”

[95] “SBA Factsheets”, “SME Policy Index” and European Commission (2011), Business Dynamics: Start-ups, Business Transfers and Bankruptcy.

[96] DG Enterprise and Industry of the European Commission (2014), Simplification of start-up procedures.

[97] For Table 10 we use data by the European “SME Performance Review” as well as data from “SME Policy Index” which use different methodologies. For example, the „SME Policy Index“ uses only a scale of five levels for the cost variable, while the “SME Performance Review” uses values in Euro. Also the definition of a “fully functional one-stop-shop” appears to differ slightly. We have requested the data and for now indicated the values in doubt with the yellow circle.

Table 10: Danube Completion of EU targets by 2012

Country	Time	Costs	One-stop Shop[98]
DE	✗	✗	✗
AT	✗	✗	✓
HU	✓	✓	✗
CZ	✗	✗	✗
SK	✗	✗	✗
SI	✓	✓	✓
BG	✗	✗	✓
RO	✓	✓	✓
HR	0	✓	0
RS	0	✓	0
BA	0	✗	✗
ME	0	✓	0
MD	0	✓	0
UA	✗	✗	0

Explanation of Symbols:

✓ : Criterion was fully met
✗ : Criterion was not fully met
0 : Unclear whether criteria was met[99]

Source: SME Performance Review (2012), SME Policy Index (2012), Calculation and illustration: IAW

By 2012 only Slovenia and Romania had met all three objectives. As only three countries in the EU had met these ambitious aims, the Danube countries do

[98] „A fully functional one-stop-shop".

[99] For time yellow means: between 1 to 5 days. For one-stop-shop it means „OSS for business registration operates on the basis of multiple windows in one location or with a limited geographic scope"

not performs worse than countries from other regions. The number of completed targets in the region is roughly at the same level as in EU-27.[100]

4.3.3.2 Obstacles for starting a business from the "Doing Business Report"

In the next section, we use the data of the "Doing Business Report" by the World Bank, which contains measures of the regulatory burden on SMEs and has a number of unique features. The indicators do not only cover the licensing process but the whole registration formalities and thus give a more complete picture. Additionally the data incorporates many years and a large set of countries.

Table 11 shows the average world rank for the Danube Region, OECD, EU-15, EU-27 and the USA in the category "Starting a Business". Out of the 188 countries in the report, the region takes an average rank of 89, which is well behind the benchmark regions (see Annex Table 22 for country rankings).

Table 11: Average World Rank in 2013 in the category „Starting a Business"

Danube	OECD	EU-15	EU-27	USA
89 (-)	49 (-)	63 (+)	70 (+)	20 (-)

Notes: Green (+) means improvement, Red (-) means decline compared to 2012 .
Source: Doing Business (2014). Calculation and illustration: IAW.

To obtain a more detailed picture, we look at two standard indicators to measure the ease of starting a business: the time and cost. As several studies[101] illustrate, reducing the time and the cost of these procedures is connected with a higher market entry rate as well as more employment, higher profits of existing firms and smaller size of the informal sector.

[100] For comparison see European Commission (2011), Business Dynamics: Start-ups, Business Transfers and Bankruptcy.

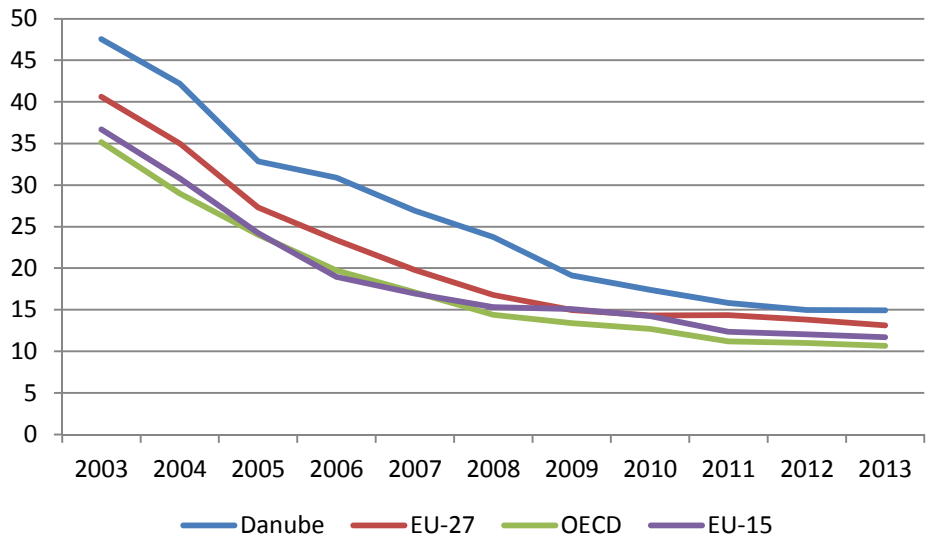
[101] See for the literature study of Djankov (2009) or Motta, Oviedo, Santini (2010).

The objective of the Europe 2020 plan is to reduce the time required for the entire licensing process to one month, i.e. 30 days by 2015.[102] As can be seen from Figure 100, the procedures were still lengthy in 2003. It took on average 48 days which was 13 days above the OECD average. At the same time, the time to complete registration procedures also declined in the benchmark regions, so that the Danube average is still above the OECD average in 2013. Although we cannot be sure that the methodology of measuring time until completion is exactly the same, we see evidence that the region is going to exceed the Europe 2020 goal. According to our data, the target is already met by all Danube countries except Bosnia and Herzegovina in 2013.

All groups within the region have made progress, but there are still some discrepancies (Annex Figure 111). Most improvements have been made by the countries of Member States Area 2 who cut the time from 64 to 12 days. The average time in 2013 for the different region ranges from 20 days in the Accession Countries to 12 in the countries of Member States Area 3. However, since these differences were substantially larger in 2003, the development indicates some degree of convergence.

[102] Brussels, 9.1.2013 COM(2012) 795 final, "ENTREPRENEURSHIP 2020 ACTION PLAN" p. 21.

Figure 100: Time to complete business-registration procedures (in days)



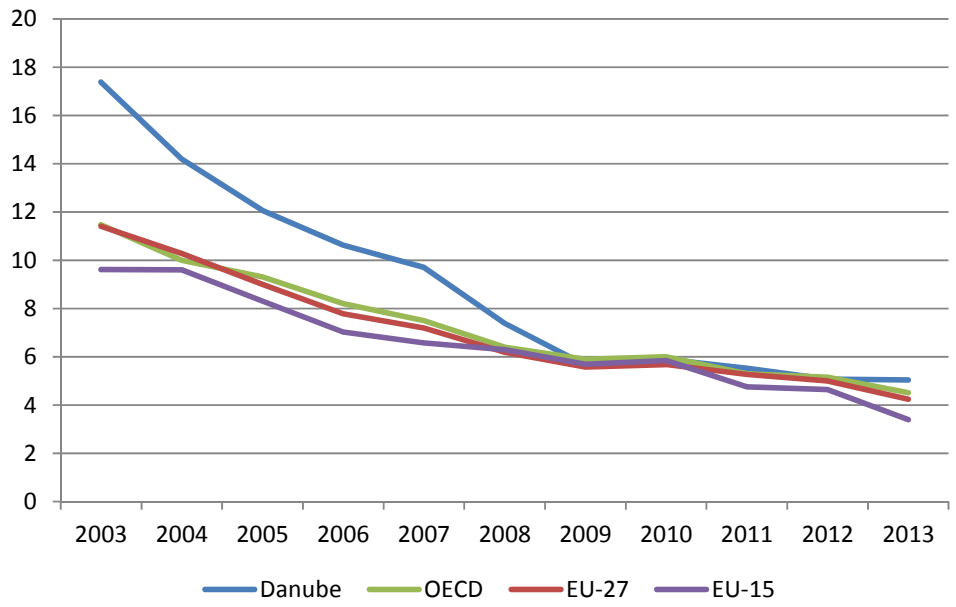
Notes: Median time „necessary in practice to complete a procedure with minimum follow-up with government agencies and no extra payments". The company form is a limited liability. Source: Doing Business (2004-2014). Calculation and illustration: IAW

A similar picture arises with regard to the cost of the starting a business, measured in relation to annual capita income (see Figure 75).[103] Compared to 2003, average costs decreased from 17.4% to 5.0% in 2013. The region has caught up with the OECD (4.5%) and EU-15 (4.2%) averages and is performing in the highest quarter worldwide.[104] Again we see some differences among the sub groups. Member and Neighbouring States have costs below 5% while Accession Countries figures at 8%. However, the difference between these groups has decreased considerably (see Annex Figure 152). Differences between the Member States are relatively small. Most progress has been made by the countries of Member States Area 2 which have cut the costs from 18.7% to 4.6%.

[103] This cost is measured as percentage of income per capita. It thus accounts for income disparities across the countries and for GDP Growth.

[104] Doing Business report 2014 data

Figure 101: Cost to complete business-registration procedures (in % of income per capita)



Notes: The cost includes all official fees and fees for legal or professional services if such services are required by law.
Source: Doing Business (2004-2014). Calculation and illustration: IAW

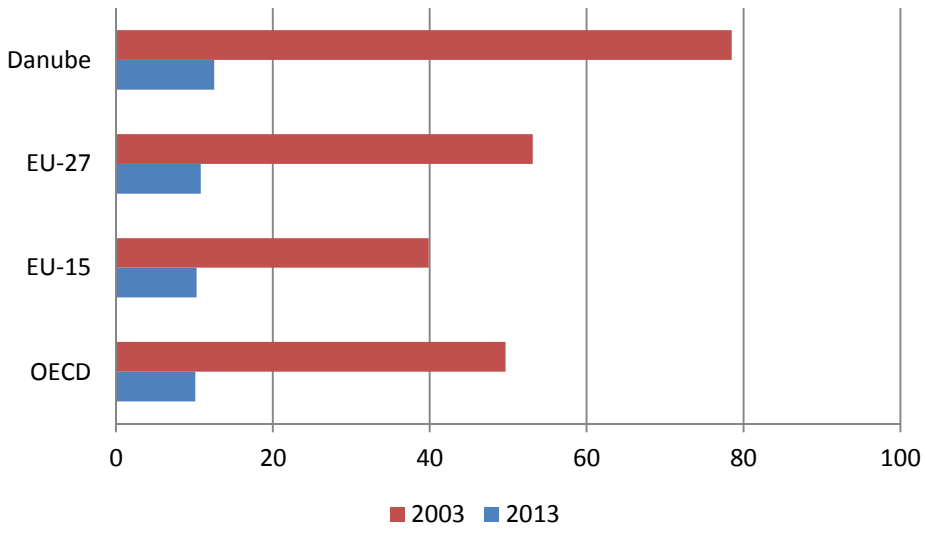
Altogether the Danube Region has achieved considerable improvements regarding the obstacles to starting a business. Both the time requirement and the cost of the start-up process have been cut by more than two-thirds. Despite the significant decline, the cost level is not yet as low as for the benchmark country groups of the OECD and EU-15.

The third component which we assess is required minimum paid-in capital regulations, i.e. regulations obliging new business to hold a certain amount of capital as deposit in a bank. There is some evidence that these requirements are associated with lower market entry rates.[105] The central argument in favour of higher capital requirements is that they may increase the security for

[105] "The Effect of Business Regulations on Nascent and Young Business Entrepreneurship" (2007).

investors and thus firms themselves[106]. However, the World Bank finds that higher minimum capital requirements are associated with weaker investor protection.[107]. Also we believe that other measures such as protective bankruptcy legislation can be more effective in guaranteeing investor protection. Thus, we view minimal capital requirements mainly as obstacles to new business formation.

Figure 102: Paid- in Minimum Capital Rates (in % of income per capita)



Note: Values for EU-27. No value available for the Czech Republic, Luxemburg and Malta for 2003. Average calculated for the other countries of the EU-27.
Source: Doing Business (2004-2014). Calculation and illustration: IAW

As one can see from Figure 102, the level of these requirements in 2003, 78.5% of income per capita in 2003, was substantial in the Danube Region. Over the years all groups decreased requirements and by now the average is at 12.5% in 2013. This is slightly above the OECD, EU-27 and EU-15 bench-

[106]UNESCAP Minimum Capital Requirement UNESCAP (2011), Guidelines for Minimum Standards and Codes of Professional Conduct for Freight Forwarders, Non-Vessel Operating Common Carriers and Multimodal Transport, pp.11-14.

[107] Doing Business: Why are minimum capital requirements a concern for entrepreneurs? (2014)

marks. Leading the way are once more the countries of the Member States Area 3 (Annex Figure 113). Bulgaria, Croatia, Germany, Montenegro, Serbia and Ukraine have abolished them completely.

4.3.3.3 Conclusion

All in all, the indicators for market entry show strong improvements in administrative obstacles to starting a business. In 2003, the region was significantly lagging behind the OECD, EU-27 and EU-15 in all measures of regulatory burden. During the past decade, both the time and the cost of business start-up have been cut roughly by two-thirds. Minimum capital requirements have, on average, been cut by one-sixth, and several countries decided to abolish them completely. Still, the 2012 objectives set by the EC were not met by most countries. Thus, there is potential and need for further progress.

4.3.3.4 Attitudes of the population regarding self-employment

Besides the administrative conditions for setting up a firm also the attitudes of the population regarding self-employment plays a role in how much start-up activity is observed in a region. In order to analyse the attitudes regarding self-employment in the Danube Region, we use information from the Eurobarometer.

The Eurobarometer is a survey among the citizens of the EU on behalf of the EC. It serves the EC to monitor the development of opinions in the European population. Every half year, approximately 1000 people aged 15 years and above in each country of the EU are interviewed regarding their attitudes on key issues of the EU. Besides these so called Standard Eurobarometers, which cover topics such as the social situation, the environment, the Euro, and the work of the EU institutions, there are also ad hoc studies (Flash Eurobarometer) on a non-regular basis on different issues, among others on entrepreneurship. The results of these studies are published in the Flash Eurobarometer series. In the following we use information from the Flash Eurobarometers on entrepreneurship which are conducted in the year 2004 and beyond. In particular, these are the Flash Eurobarometers No. 160 (year 2004), 192 (year 2007), 283 (year 2009), and 354 (year 2012). As the Eurobarometer is a survey in the countries of the EU, the non-EU members of the Danube Region cannot be considered. In addition, because opinions cannot be captured retrospec-

tively, only information starting with the accession of the respective country to the EU is available.

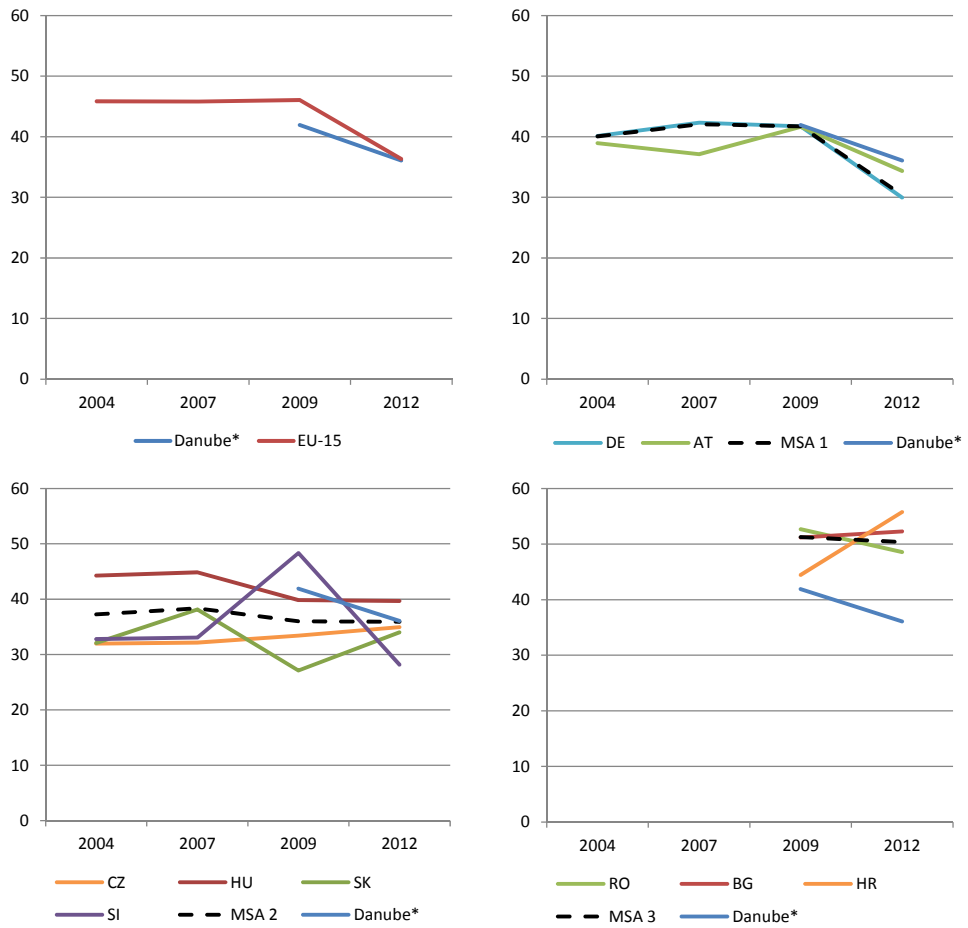
The main question regarding the attitudes of the population with respect to self-employment in the Eurobarometer is the following: “If you could choose between different kinds of jobs, would you prefer to be a) an employee, b) self-employed, c) none.” Figure 103 shows the extrapolated percentage of the persons aged 15 years and above who stated that they would like to be self-employed (regardless whether or not they are actually self-employed and regardless whether or not they are employed at all).

What can be taken from Figure 103 is that the percentage of the persons who would like to be self-employed has been more or less constant between 2004 and 2009 for most of the countries/regions for which data are available. Starting with 2009 there have been changes in the attitudes regarding self-employment in a number of countries/regions. For the EU-15 countries there has been a sharp drop from 46% in 2009 to 36% in 2012 which is also reflected in the time series of the countries of Member States Area 1. In Slovenia there has been a strong increase between 2007 and 2009 and a considerable decrease between 2009 and 2012. For Slovakia the inverse development is observed. Croatia experienced a strong increase between 2009 and 2012. For the EU-countries of the Danube Region as a whole it can be observed that there has been a drop from 42% of the persons who would like to be self-employed in 2009 to 36% in 2012. It is likely that these changes are due to the financial crisis starting in 2008. It is reasonable to assume that people change their attitudes only if there are major changes in their environment.

What also can be seen in Figure 103 is that there are differences regarding the attitudes with respect to self-employment between the individual subregions of the Danube Region. The highest percentage of person who would like to be self-employed can be found in the countries of Member States Area 3. In this subregion around half of the population aged 15 and above would like to be self-employed. In the countries of Member States Area 1 it was two fifth until 2009 (and 30% in 2012), and around 37% in Member Area 2. Given this numbers the populations in the countries of Member States Area 1 and 2 tend to be more reluctant to strive for a status as self-employed than the population of the EU-15 member countries as a whole. At least until 2009. After that the

numbers have converged. It remains to be seen whether this assimilation is lasting.

Figure 103: Percentage of persons who would like to be self-employed in the Danube Region 2004-2012



Note: Question posed: "If you could choose between different kinds of jobs, would you prefer to be a) an employee, b) self-employed, c) none." Percentage of person who chose item b) reported in the figure. *Considered countries of the Danube Region: DE, AT, HU, CZ, SK, SI, RO, and BG.
Source: Flash-Eurobarometer Nr. 160, 192, 283, 354. Calculation and illustration: ZEW.

4.3.4 Conclusion

Regarding economic freedom, a ranking as "moderately free" predominates in the Danube Region. Over time, there is a divergence between EU members and Accession Countries, which have made progress during the last 4 years,

and Neighbouring Countries, in which economic freedom has decreased and which are rated as “mostly unfree”.

Our analysis highlights that corruption remains a major issue for a large part of the region. There has been policy effort both at national and international level, but this had not (yet) led to any noteworthy improvements in various measurements of corruption.

Our analysis of the regulatory framework focuses on market entry regulations. EU member states, Accession Countries and Eastern partner countries are subject to a systematic review of the criteria of the “Small Business Act for Europe” regarding the simplification of start-up procedures. Over the last 10 years, the cost and time to complete business-registration procedures have each been reduced to one-third, and minimum capital requirements to one-sixth. Still, the OECD and EU-15 benchmark levels have not been entirely reached in any of the indicators, which leaves room for further reforms.

4.4 Development of Clusters

4.4.1 Framework and methodology

The theory of geographic location suggests that competitive advantage is not exclusively created within the company or even within the industry, but it is a consequence of the fact that the industry is located in a favourable region for its development. Regional economics deems industrial agglomerations as an immediate result of economic activity, which have, in turn, a direct impact, favourable or not, on the overall economic performance. The modern concept has been substantially developed and applied to competition analysis by Michael Porter (1990, 1998) and Michael Enright (2001), adding to an old and prolific intellectual tradition that reunites among others Marshall with Principles of Economics (1890), Isard with Location and Space-Economy (1956) and Hirschman with The Strategy of Economic Development (1958).

Porter defines clusters as „geographic concentrations of interconnected companies and institutions in a particular field“ (Porter, 1998). Clusters include a set of related industries, as well as other entities which are important in terms of competition, such as: clients, specialized suppliers, service providers, companies in related industries and associated institutions (universities, various

government agencies, professional training centres and commercial associations). Porter explains these competitive agglomerations as a new spatial form of organization, which is significantly different from the traditional integration of companies on the market. They represent a new way of organizing a value chain. The fact that the companies are clustered together in one region and that the on-going exchanges among them foster good communication and mutual trust produces advantages in terms of production efficiency and flexibility in drawing up competitive strategies.

The analysis will use a framework that acknowledges the conceptual and practical differences between clusters, clusters organizations and networks, as set recently in the literature[108]:

- *Clusters* are geographically co-located firms and other institutions engaged in economic activities in a set of related industries, connected through externalities and other type of linkages. Collaboration may or may not take place, and could focus either on broader competitiveness upgrading or on specific projects.
- *Cluster organisations* are focused on a specific geography, oriented towards a set of related industries (also called a 'cluster category'), and they provide a structure for actual collaboration of firms and other institutions (these are often called clusters in everyday practice);
- *Networks* of firms may or may not be confined to a specific geography and set of industries. They are by definition structures specifically created for active collaboration. This collaboration could be open-ended or focused on a specific project task; cluster organisations are a specific type of networks.

[108] Ketels, C - *The impact of clusters and networks of firms on EU competitiveness*, Final Report: Firm networks 2012, Specific Contract 605748 found on 11/09/2013 at http://www.clustercollaboration.eu/documents/10147/23229/Cluster+and+Networks+FINAL+REPORT+05-10-12+CK.pdf

Such differentiation is useful from a policy perspective as well. In the 2013 TACTICS Report[109] the following additional definitions are added:

- *Cluster initiatives* are organised efforts to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community.
- *Cluster policies* are programmes or other organised efforts taken by the government to increase the growth and competitiveness of clusters in its constituency.

The importance of cluster-based activity is growing in the Danube Region as more and more countries have adopted active cluster development policies and inter-cluster cooperation has started to move up on the economic agenda at regional level. While in Chapter 7 the focus will be on screening transnational networking and cluster initiatives in the Danube Region, in this sub-chapter the effort is to check the economic grounds for such cooperation.

The main questions that will be answered are as follows:

- Is there a way to map relevant clusters in the Danube Region in order to have a sense of the amplitude of potential cooperation?
- Can one identify particular sectors of potential cross-cluster cooperation in the Danube Region based on existing and potential development?
- What is the level of institutional readiness of cluster organisations to engage in cross-cluster cooperation?

The final purpose of the analysis is to provide evidence-based recommendations for how to reinforce competitiveness in the Danube area by enhancing cluster development and inter-cluster cooperation across member countries.

Quantitative mapping of clusters

[109] Transnational Alliance of Clusters towards Improved Cooperation Support (TACTICS) - *Key messages and practical recommendations from the TACTICS project*, 2013 found on 20/02/2014 at http://www.eca-tactics.eu/page/tactics-final-reports;

The first activity of this task is to take stock of the existing clusters in the Danube Region. The most useful methodology and data set for the above purpose can be drawn from the European Cluster Observatory (ECO). The ECO, launched in 2007, is an online platform that provides a single access point to information and analysis of clusters and cluster policy in Europe, including most countries from the Danube Region. The platform offers valuable data both on the geographic concentration of various industries and indicators of economic performance. Data are available for the following countries in the Danube Region: Germany, Austria, Czech Republic, Slovakia, Hungary, Croatia, Slovenia, Serbia, Bosnia and Herzegovina, Bulgaria, Romania, Ukraine.[110] A cross-country comparison can be made based on date up to 2011[111] allowing a quantitative benchmarking of economic clusters based on the following structure:

- Industry sector classification (41 sectors at NACE 3 level[112] – Annex Table 25)
- Regional classification (NUTS 2 - subnational level[113])
- Size, Specialization and Focus of clusters (Box for ECO star rating)
- Number of employees and number of enterprises in respective clusters

The quantitative data provides thus an excellent overview of the sectoral agglomerations per each country of the Danube Region, which reflects existent cluster potential. In order to analyse such data, a two-step filtering process will be applied.

[110] Data is unavailable for Montenegro and Moldova;

[111] Most data is in fact 2010 or older, which is a limitation in terms of data availability;

[112] NACE - Statistical classification of economic activities in the European Community;

[113] The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU. For Germany and Ukraine selected data is related only to Danubian NUTS 2 areas (DE: Baden-Wuerttemberg, Bayern; UA: Odesa, Chernivtsy, Ivano-Frankivsk, Zakarpattya);

Box 4: European Cluster Observatory (ECO) methodology

The amount and quality of knowledge circulating and spilling over between firms, located in a cluster, is dependent upon the cluster's size, the degree to which it is specialized and the extent to which the location (the region) is focused upon production in the relevant industry comprising the cluster. The European Cluster Observatory shows the extent to which clusters have achieved this specialized critical mass by these three factors as described below. Each cluster gets 1, 2 or 3 Stars depending on how many of the criteria they meet.

- *Size Star:* if employment reaches a sufficient share of total European employment, it is more likely that meaningful economic effects of clusters will be present. The size measure shows whether a cluster is in the top 10% of all clusters in Europe within the same cluster category in terms of the number of employees.
- *Specialization Star:* if a region is more specialized in a specific cluster category than the overall economy across all regions, this is likely to be an indication that the economic effects of the regional cluster have been strong enough to attract related economic activity from other regions to this location, and that spill-overs and linkages will be stronger. The specialization measure compares the proportion of employment in a cluster category in a region over the total employment in the same region, to the proportion of total European employment in that cluster category over total European employment. The measure needs to be at least 2 to receive a star.
- *Focus Star:* if a cluster accounts for a larger share of a region's overall employment, it is more likely that spill-over effects and linkages will actually occur instead of being drowned in the economic interaction of other parts of the regional economy. The focus measure shows the extent to which the regional economy is focused upon the industries comprising the cluster category and relates employment in the cluster to total employment in the region. The top 10% of clusters, which account for largest proportion of their region's total employment, receive a star.

Step 1 - Filtering for relevance

Based on the ECO methodology, the total number of potential clusters in the Danube Region that have at least 1 star is quite high - there are 2,624 such agglomerations in the mapped industries altogether. In order to increase the relevance of the analysis, a higher benchmark needs to be applied.

If only clusters with 2 or 3 stars are taken into consideration, there are only 278 such clusters (221 with 2 stars and 57 with 3 stars). The filtering process was effective, as it discarded almost 90% of the weak agglomerations that may not have been very relevant for the analysis.

Table 12: Clusters with 2 or 3 stars per country in the Danube Region

Country	*2 star clusters*	*3 star clusters*	*Total clusters*
Germany*	45	18	63
Romania	26	16	42
Czech Republic	30	7	37
Austria	28	3	31
Hungary	20	3	23
Bulgaria	15	3	18
Slovakia	17	1	18
Ukraine*	14	2	16
Serbia	14	1	15
Croatia	7	2	9
Slovenia	2	1	3
Bosnia-Herzegovina	3	-	3
Total	221	57	278

Notes: *Only BW and BY.

Source: ECO database (www.clusterobservatory.eu), Calculation and illustration: Dragos Pislaru.

Data shows, that Germany gathers most of the relevant cluster concentrations, followed by Romania, the Czech Republic and Austria. In the case of Romania, the explanation is partly due to the former communist regime's approach of scattering industry throughout the country with sectoral focus, which nowadays still provides grounds for cluster specialization.

Step 2 - filtering for potential cross-border cooperation

The assumption behind this second filter is that the most relevant form of cluster cooperation for the Danube Region is not bilateral, but involves more than two countries of the area. Therefore, if within a particular industrial sector there are clusters in three or more countries, this will indicate potential for cluster cooperation in the Danube Region in that particular sector.

By grouping the clusters with 2 and 3 stars per sector, while respecting the above filter, only 21 NACE 3 sectors show potential for cluster cooperation across the region based on the suggested methodology. The results are available in Table 26 in the Annex and are shown graphically in Figure 104 below.

Figure 104: Cluster mapping per industrial sectors in the Danube Region

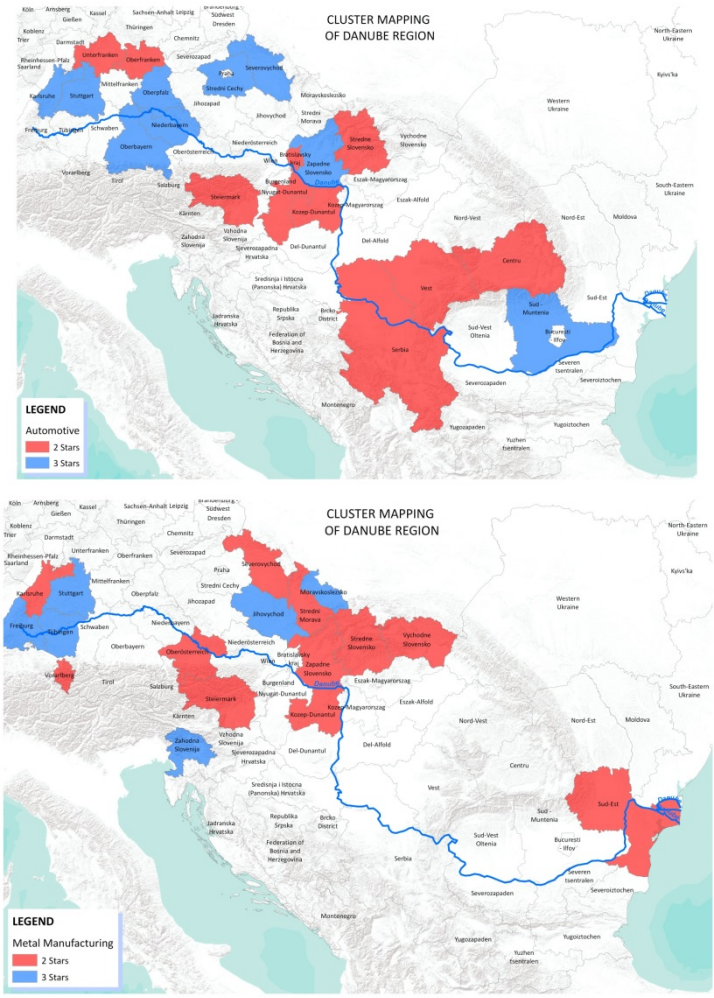
Source: European Cluster Observatory database

Potential for cluster cooperation – a quantitative approach

Although it is rather difficult to classify the selected 21 sectors in terms of their clustering importance, there are a few features that may be rewarding to analyse. In the following we group sectoral clusters by the number of employees, then we look at the number of enterprises and countries involved. All these ways of selection will suggest conclusions for cluster cooperation policy.

In terms of the number of employees, the automotive and the metal manufacturing sectors are topping the list, with around 500 thousand employees each.

Figure 105: Cluster mapping - automotive and metal manufacturing

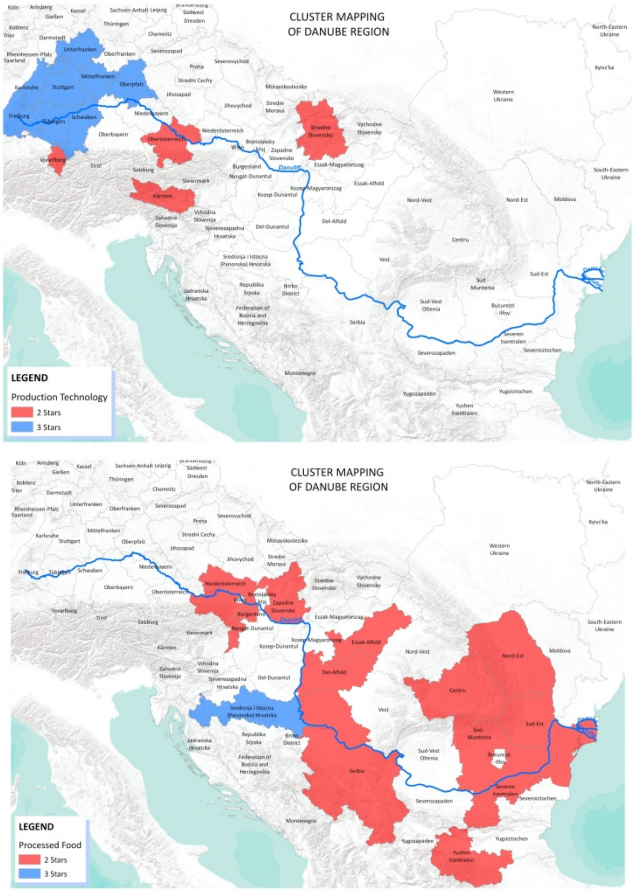


Calculation and illustration: Dragos Pislaru.

Both sectors are well represented across a significant number of Danube countries with a majority of 3 star clusters. The automotive sector is slightly more preeminent and with better coverage than metal manufacturing.

A second group four of sectors gather around 300 thousand employees each - production technology, construction, processed food and transportation and logistics.

Figure 106: Cluster mapping - production technology and processed food



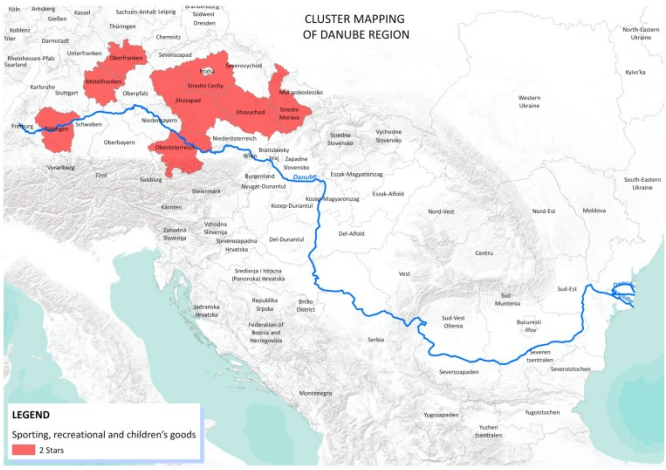
Calculation and illustration: Dragos Pislaru.

It can be easily observed that sectoral cluster distribution is uneven across the region, which is normal taken into account the high heterogeneity of member countries. As can be seen above, there are more advance sectors, such as production technology, with clusters located in more developed countries, and

there are other sectors, such as processed food, which have clusters concentrated in less developed or agriculture-related countries. There are also niche sectors with less than 50 thousand employees gathered in selected clusters – biotech, sporting, recreational and children's goods, leather products, lightning and electrical equipment, oil and gas.

The heterogeneity of clusters suggests that cooperation in between clusters in different sectors may have different employment impact. If job creation is a critical target of the Danube Strategy as part of the people and skills priority, then more attention can be oriented towards the cooperation of more labour intensive clusters. On the other hand, cooperation in niche sectors may prove to be key to competitive growth, so promoting biotech cluster organizations would be advisable.

Figure 107: Cluster mapping - recreational & children's goods

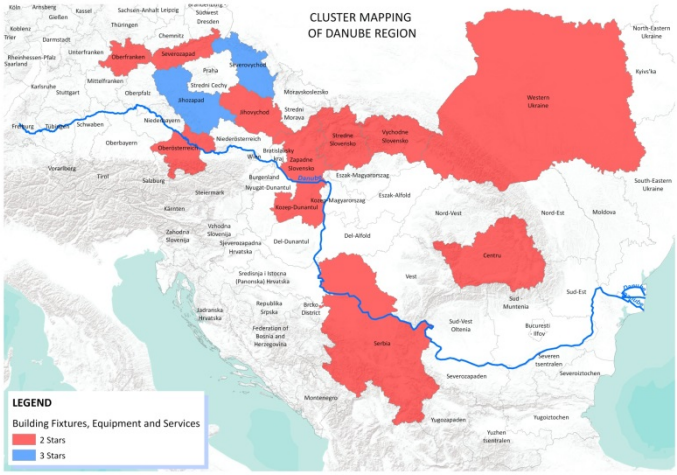


Calculation and illustration: Dragos Pislaru.

Same logic applies in factoring the number of enterprises gathered by clusters in different sectors. Size matters in certain sectors, so in biotech or oil & gas there are less than 200 enterprises forming the respective clusters. At the other end of the spectrum, there are more than 45 thousand enterprises in metal manufacturing or more than 30 thousand enterprises in construction. This implies a high density of small-sized companies, which may allow for more flexibility in difficult times than in clusters with larger entities.

As regards the involvement of different countries, there are sectors that gather clusters from up to 8 countries out of the 12 taken into account – such as metal manufacturing, building fixtures, equipment and services as well as processed food.

Figure 108: Cluster mapping - building fixtures



Calculation and illustration: Dragos Pislaru.

Such sectors should be easier to get interested in the Danube Region cluster agenda, as they have a majority of member countries involved.

However, there are sectors where despite the fact that clusters are originated from a small number of countries (only 3 countries have 2 and 3 star clusters in furniture, productive technology, construction, biotech, IT, farming or sporting and recreational), the stake for the respective countries is high enough to justify their involvement in the Danube cluster cooperation agenda.

Figure 109: Cluster mapping - biotech

Calculation and illustration: Dragos Pislaru.

Moreover, from a normative perspective, it may be rewarding to promote cooperation in such sectors in order to get more emerging clusters on board from other countries, especially in high-tech fields such as IT or biotech.

Last but not least, in several of the sectors, some countries have a larger stake than others, in the sense that clusters originating from a particular country are relatively dominating the respective sectoral cluster bundling. This seems valid for Romania in the case of apparel, footwear, furniture and construction; for Germany as regards automotive, IT, biotech or production technology; for the Czech Republic related to building fixtures equipment & services or lightning & electrical equipment, or for Bulgaria in the case of farming and animal husbandry.

Figure 110: Cluster mapping - apparel industry

Calculation and illustration: Dragos Pislaru.

Such situation may imply that countries might choose to reinforce their dominating sectors, but it may also be the case that current low-tech oriented countries would promote more cluster cooperation in high-tech sectors as a way to upgrade their economic structure towards higher value-added activities.

To sum up, by using the ECO database, and by applying two filters in order to focus on the most relevant results, we obtained a quantitative image of how clusters are spread out across the Danube Region and which sectors may qualify for cluster cooperation based on an existing critical mass of companies.

Potential cluster cooperation – a qualitative approach

An alternative to cluster mapping based on ECO is to carry out a survey within the countries of the Danube Region and ask stakeholders from the cluster-related community what clusters/sectors they wish to develop.

In fact, as part of the work within the Working Group for Cluster Excellence in PA 8 of the EUSDR, TMG Upper Austria has applied a survey on sectors and specialisations of cluster initiatives. The results show that automotive, ICT, wood processing, food and textiles are the most proeminent sectors with cluster activity across the region (Table below).

Table 13: Sectors and specialisations of cluster initiatives in the Danube Region – qualitative results of survey carried by TMG Upper Austria

Sector	Number of countries	AT	BG	HR	CZ	DE	HU	ME	MD	RO	RS	SK	SI	UA
Automotive	11	x	x	x	x	x	x			x	x	x	x	x
ICT	10	x	x	x	x	x	x			x	x	x	x	
Wood	10	x	x	x	x	x	x	x		x	x		x	
Energy Technology + Renewable Energy	9	x		x	x	x	x			x	x	x	x	
Food	9	x	x	x		x	x	x		x	x			x
Textile	9	x	x	x	x	x	x		x	x	x			
Agro Technology	8	x		x		x	x		x	x	x			x
Engineering	8	x			x	x	x			x	x	x	x	
Environmental Technology incl. Recycling	8	x			x	x	x			x	x		x	
Health Care/ Medical Technology	8	x		x	x	x	x			x	x		x	
Mechatronics	8	x	x	x	x	x	x			x		x		
Biotechnology	7	x			x	x	x			x	x		x	
Electronics	7		x			x	x			x	x	x	x	
Logistics	7	x				x	x			x	x		x	x
Plastics	7	x		x	x	x	x				x	x		
Tourism	7	x		x			x			x	x	x		x
Micro- and Nanotechnology	6	x	x		x	x	x			x				
Business services	5					x	x			x	x			x
Construction	5	x					x				x		x	x
Metallurgy	5		x	x		x					x			x
Aerospace	4					x	x			x	x			
Chemical	4					x	x						x	x
Creative Industries	4					x	x			x	x			
Maritime	4		x	x						x	x			
Packaging	4				x	x	x			x				
Handicraft	3					x	x				x			
Heavy Machinery	3						x						x	x
Optical technologies/Photonics	1					x								

Source: Danube clusters – striving for excellence, Results of the EUSDR working group on Clusters of Excellence within the Steering Group of PA 8 Competitiveness of Enterprises including Cluster Development, flyer, p.7.

The survey, carried out mainly among public officials and cluster members, is a valuable source for the normative view on cluster development, which complements the descriptive/quantitative view in the previous section.

As it could be expected, ICT and renewable energy are also ranking high in the survey, as these sectors constitute key technologies of the future, that every

country and investor in the Danube Region should consider. Other sectors with high ranking are environmental technology, healthcare, micro-nano technology, aerospace or creative industries. Cluster organizations have recently or will soon emerge in most of these fields as a policy and business response to the challenges of tomorrow. However, not all such new developments have a critical mass or sustainable development perspective without public support. Otherwise, there are a lot of sectors that are broadly validated both by the survey and by ECO data, such as automotive, wood, food, textile, engineering etc.

Such results are useful for policy initiatives within EUSDR, as they allow both a touch-base with existing reality and a perspective on the openness of stakeholders to push for industrial advance and cooperation.

However, from the public policy willingness to push for cluster development to mobilising private sector to engage in a process of shared value and cooperation, there still is a complicated road to follow - clustered firms will not cooperate extensively without the existence of robust cluster initiatives and organisations.

The quoted survey highlights the high variation among countries of the region in terms of the degree of institutionalization of clusters. Results for Austria and Germany suggest strongly institutionalized clusters, whereas Ukraine, Moldova, Serbia and Montenegro have more than 75% of clusters weakly institutionalized. In other words, there is much work to do in order to balance the quality and performance of cluster organisations across the regions.

Below are a couple of preliminary recommendations as regards the use of the above results from a policy perspective:

- First, cross-cluster cooperation needs proper facilitation and support , based on the development of cluster organisations to back-up the process
- Second, the presence of cluster initiatives and organisations is not a guarantee for excellence and a pledge for cooperation - there is a need to support and know-how transfer to allow stronger and more efficient cluster organisations

- Third, the public push for cluster development and cross-cluster co-operation needs to be reciprocated by a market/business pull, with enough traction to create sustainability

Some of the above issues are outside the immediate scope of this report. But the issue of both the existence and quality of cluster organisations within the Danube Region certainly needs immediate attention.

Institutional readiness of cluster organisations for cooperation

The first critical barrier in assessing the capacity of cluster organisations to engage in cross-cluster cooperation activities is related to the availability and quality of data and information. Data are scarce and unreliable, regardless its origin at EU, government or private sector level.

Without pretending to provide a comprehensive taxonomy on data sources, one may find the following broad channels of information:

- EU projects or initiatives - data are gathered through the participant stakeholders, either public (governments) or private (cluster organisations, consultants etc.)
- Research projects
- Cluster organisations
- National associations of cluster organisations

The quality of data is poor because either (a) it is based on voluntary descriptions of cluster organisations - subjective assessment (b) it is reported by governments in an optimistic way to impress (c) it covers only partially the existing reality, (d) tends to be focused nationally instead of the regional level.

For clarity of the arguments, a mini-case study on clusters in Romania is presented below.

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Romanian clusters - how many, how good and how relevant?

Based on ECO data, and using the methodology argued for in this report, there are 41 clusters (2 and 3 stars) from Romania that can be grouped per sectors at region (NUTS 2) level:

Table 14: Clusters in Romania

Code	Region (NUTS 2)	No of clusters	Clusters
RO11	Nord-Vest	5	apparel, footwear, furniture, heavy machinery, construction
RO12	Centru	8	apparel, footwear, leather products, furniture, automotive, building fixtures, equipment & services, oil & gas, processed food
RO21	Nord-Est	5	apparel, textiles, footwear, construction, processed food
RO22	Sud-Est	5	apparel, metal manufacturing, construction, processed food, transportation & logistics
RO31	Sud - Muntenia	6	apparel, automotive, heavy machinery, construction, oil 7 gas, processed food
RO32	Bucuresti - Ilfov	4	footwear, construction, IT, telecom
RO41	Sud-Vest Oltenia	3	apparel, construction, power generation & transmission
RO42	Vest	5	textiles, footwear, leather products, automotive, heavy machinery

Source: ECO database

In terms of reported cluster organisations active in Romania, the official data source is the Department for Industrial Policy within the Ministry of Economy. According to this institution, there are 47 cluster organisations[114] that manifested their presence at national level as of September 2013.

By overlapping the cluster organisations and the clusters identified through using the ECO database, one may arrive in one of the following three situations:

1. There is a cluster organisation in a cluster that was not ranked 2 or 3 stars in ECO; In this case, we have one or several emergent clusters which have already decided to create a structure to promote their activity. The cluster may currently lack critical mass; therefore the aim of the cluster organisation is to push for growth and expan-

[114] some of the clusters are self-entitled "competitiveness poles", in order to become eligible to a specific line of public funding through ERDF based funding;

sion. Inter-cluster cooperation may be useful for guiding the cluster towards further development.

2. There is a cluster organisation for one of the clusters mapped through ECO;
This is a great confirmation that the ECO mapping was correct. The creation of a cluster structure is meant to reinforce the cluster potential and provides great opportunities for inter-cluster cooperation.

3. There is no cluster organisation for the clusters mapped through ECO;
This shows that local stakeholders and actors have not yet organised themselves as a cluster structure. This may be the result of lack of awareness about the benefits of such organisation, or the consequence of lacking a trust-based ecosystem conducive to cooperation.

Out of the 47 cluster organisations existing in Romania, 18 are matching the 41 clusters identified through the ECO database. This ratio is acceptable, as it leaves only a little more than half of the clusters identified in the first step of the analysis without an already founded coordination structure.

There are regional specificities that should be taken into account as well. For instance, 7 cluster organisations that match are located in the Centru NUTS 2 development region. This is due to increased awareness and organisational skills, especially within the municipality of Sfantu Gheorghe, where the local business community is highly united due to its national minority status[115].

Several of the cluster organisations that involve clusters not ranked 2 or 3 stars by the ECO are trying to emerge in the fields of renewable energy (6 cluster organisations) and tourism (7 cluster organisations). Next on the list are emerging cluster organisations in IT outside the capital city of Bucharest (4 cluster organisations) or in creative industries (3 cluster organisations). All these fields are high on the public policy agenda, and have received or are promised to receive support.

An important remark is that most of the Romanian cluster organisations were founded in the period 2011-2012, largely due to the promise of public funding through ERDF/Cohesion Policy. These structures are weak, with low buy-in from the private sector and highly dependent on public funding. This suggests

[115] Hungarian minority;

that the recent public push for cluster development may be both a positive and a detrimental factor in ensuring long-term sustainability. No evaluation was carried out so far regarding the public support for cluster organizations, as the current support schemes have just been launched.

There are some positive exceptions, such as the newly founded (2012) Cluj IT cluster organisation, which can already be considered a good practice for all other cluster structures in terms of creating a vibrant community and attracting private involvement.

Some of the more active cluster organisations have sought to pass the benchmarking exercise made available through the European Cluster Excellence Initiative (ECEI). Five clusters were granted Bronze Label – ELINCLUS (electronics), Green Energy (energy, environment), IND-AGRO-POL (agro machinery), ROSENC (renewable energy), Romanian Textile Concept (apparel, footwear). However, there are issues both with the relevance of the labelled clusters, as no one can argue that these clusters are better than the non-labelled ones, as the Bronze label is more a recognition of willingness to develop and the availability of funds to pay the labelling effort, rather than of excellence in cluster development.

Noteworthy is also the creation in July 2011 of a national association of cluster organisations, the Romanian Cluster Association – CLUSTERO[116]. Founded initially by 15 cluster organisations, the association aims by its statute to help Romania's economic recovery and development, by "*supporting the creation, development and cooperation between clusters at regional, national and international level*". Although not all 47 cluster organisations reported by the Government are members of the association, CLUSTERO seems a fitted structure to promote cooperation among clusters in the Danube Region

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The conclusions and a second set of recommendations that can be drawn from the case above can be relevant for most of the other countries in the Danube Region.

[116] more information available on www.clustero.eu;

- Data on clusters and on cluster organisation should be cross-checked and gathered from multiple sources in an organised and transparent way. Using government, cluster organisation and independent research data at the same time can be critical for having a proper design of cluster development and cooperation initiatives and for evidence-based policy;
- Labelling clusters at EU level may prove difficult and costly to implement. Voluntary labelling should be preserved, as compulsory labelling may lead to administrative cost and market distortion. As an alternative, simple and transparent benchmarking, coupled with rigorous self-assessment may be a solution.
- Supporting the creation of National Cluster Associations[117] in all countries of the Danube Region as an unique contact point of info and reporting would be advisable, provided that it will not become an administrative monopoly of some sort regarding cluster development.
- Differentiating between robust/mature cluster and emergent clusters can be useful in terms of cluster-cooperation goals and support the cooperation agenda within the Danube Region.
- Last but not least, policy evaluation is key, especially given the new generation of criticism suggesting that building an entrepreneurial ecosystem is more about facilitating talent and individual entrepreneurs rather than about building support structures.[118]

[117] several countries of the Danube region already have National Cluster Associations, so best practices are available;

[118] see for instance Vivek Wadhva in Washington Post, July 15, 2011 - *Industry clusters: The modern-day snake oil*;

5 Cohesion Policy, International Financing and Development Aid in the Danube Region

In this chapter, we address the provision of external financing and aid to the countries of the Danube area. A multitude of funds and donors is active in the Danube area, different instruments and facilities of providing finance are used, and the purposes for the provision of finance also vary. The following description is structured by institutions. We consider first the European Union. Next, we move to other multilateral institutions. In the concluding part, we focus on bilateral aid.

5.1 EU Cohesion policy

The cohesion policy of the EU, implemented by the European Commission, is an investment policy that helps to achieve the goals of the Europe 2020 strategy and focuses on "creating new jobs, competitiveness, economic growth and sustainable development."[119] EU cohesion policy is implemented by means of different EU structural and investment funds. The most important of these funds are the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF) that are directed to address inequalities within the EU. According to documents by the European Commission, the objective of the ERDF is to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions.[120] Its financing contributes to regional convergence across the EU, regional competitiveness and employment and territorial cooperation. The objective of the ESF is to improve employment and education opportunities across the European Union; the ESF also aims to improve the situation of the most vulnerable people at risk of poverty.[121] Finally, the CF aims to reduce economic and social disparities and to promote sustainable development. It is directed at Member States

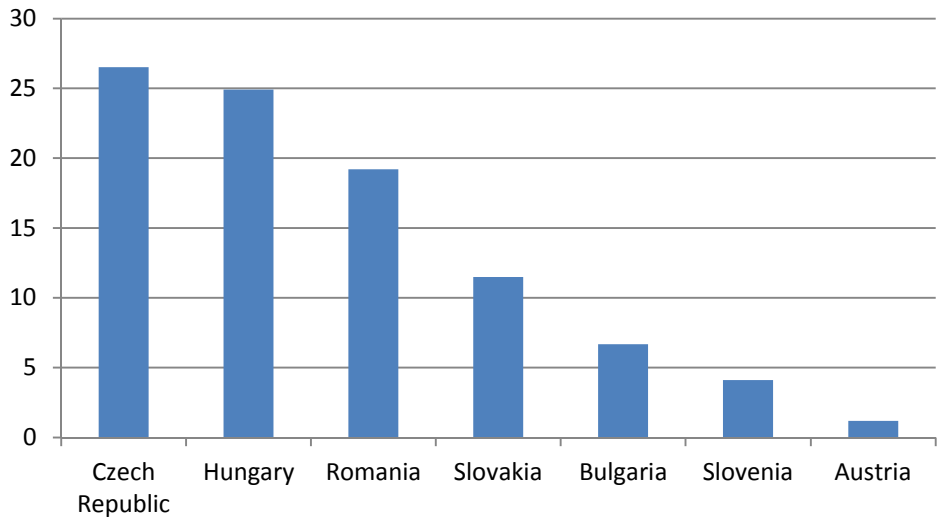
[119] http://ec.europa.eu/regional_policy/what/index_en.cfm

[120] http://ec.europa.eu/regional_policy/thefunds/regional/index_en.cfm

[121] http://ec.europa.eu/regional_policy/thefunds/social/index_en.cfm

whose Gross National Income (GNI) per inhabitant is less than 90% of the EU average.[122]

Figure 111: Cohesion policy allocation for Danube Region countries 2007-2013 (in bn €)



Note: No data for Croatia available.

Source: European Commission, EU cohesion funding – key statistics. Calculation and calculation: IAW.

The budget available for Cohesion Policy in the period from 2007 to 2013 amounts to EUR 347bn, which equaled 35.7% of the total EU budget. In this period, EUR 201bn were allocated to the ERDF, EUR 76bn to the ESF and EUR 70bn to the CF. As all cohesion policy programmes have to be co-financed by the receiving countries, this meant that the actual investment volume generated for the member states may amount to nearly EUR 700bn.[123]

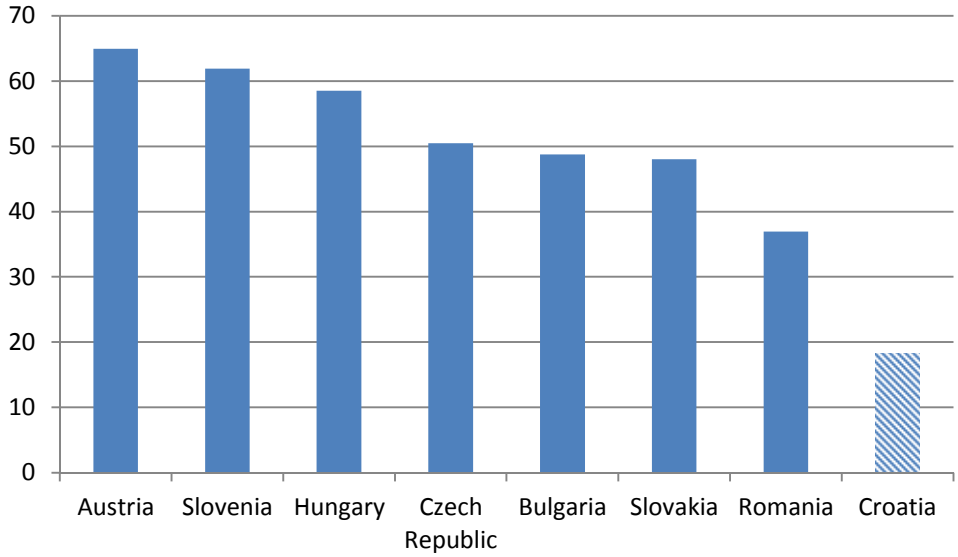
In the period 2007-2013, around EUR 94.1bn of the available budget was allocated to the countries of the Danube Region, excluding Baden-Wuerttemberg

[122] http://ec.europa.eu/regional_policy/thefunds/cohesion/index_en.cfm

[123] http://ec.europa.eu/regional_policy/thefunds/funding/index_en.cfm

and Bavaria.[124] This accounts for around 27% of the total available budget. Around EUR 26.5bn were allocated to the Czech Republic, followed by Hungary (EUR 24.9bn) and Romania (EUR 19.2bn). Highly developed Austria received only EUR 1.2bn (Figure 111).

Figure 112: Absorption rates (% of funds allocated to member states) 2007 - 2013



Source: European Commission, EU cohesion funding – key statistics. Information on the payment rates on this website is updated every quarter. Last update: 28/11/2013. Illustration and calculation: IAW.

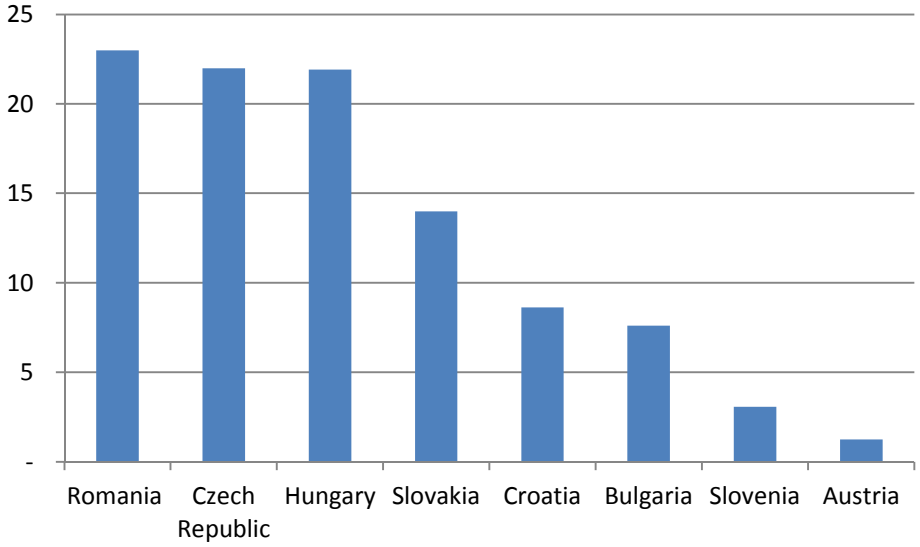
A more important question is which percentage of the available funds has been actually used by the Member States. This can be measured by the absorption rates, the percentage of the total funds allocated per Member State that has been paid by the Commission. Figure 112 shows that there is a strong discrepancy in the absorption rates between the Danube countries: they vary from 36.9% in Romania to 64.9% in Austria. Out of the seven countries with absorption rates below 50%, five are from the Danube Region. The low ab-

[124] Due to the German federal structure, it is difficult to break down data on the structural funds to the German Bundesländer. Hence, we exclude them in the following.

sorption rate of Croatia is due to the fact that Croatia only entered the EU in 2013.

Taken together, the Danube Region lags behind the rest of the EU. On average, only 52.8% of the funds allocated per Member State were actually paid out in the Danube Region, whereas the average was about 61.2% in the total EU. Measures to improve the actual use of available funds are, thus, a top priority for the region. One of the reasons of the low absorption rates in the Danube Region is that co-financing capacity was not available.

Figure 113: **Cohesion policy allocation to Danube Region countries 2014-2020 (in bn €)**



Source: European Commission, EU cohesion funding – key statistics. Illustration and calculation: IAW.

In the period 2014-2020 period, about EUR 100bn will be allocated to the Danube Region (again excluding Baden-Wurttemberg and Bavaria). This is slightly more than in the previous programming period and accounts for about 28.8% of the total available budget for cohesion policy. Within the Danube Region, Romania will receive the largest share of the funds (EUR 23.0bn), followed by the Czech Republic (EUR 22.0bn) and Hungary (EUR 21.9bn) (Figure 113). Compared to the previous programming period, funds are allocated slightly more evenly between the countries of the Danube Region. The most recent EU member, Croatia, will receive EUR 8.5bn from the structural funds.

The Commission and the Member States are in charge of the evaluation of cohesion policy, keeping track of outputs and results and the contribution of cohesion policy to reducing economic and social disparities across Member States and to the Europe 2020 strategy. The Commission Strategic report 2013 on programme implementation 2007-2013 synthesizes the findings of these evaluations. It concludes that "cohesion policy has been instrumental in sustaining public investment in vital economic areas such as research and development, SME support and sustainable energy, re-industrialisation, social inclusion, reforms in education and training systems and labour market challenges."[125] Concerning the creation of jobs, the Commission reports that almost 400,000 jobs had been created due to ERDF/CF interventions from 2007 to 2011. Only a small share of these (47,000, or close to 12%), however, were created in the Danube countries (Baden-Württemberg and Bavaria excluded), significantly less than their share in structural funds allocations.[126]

The effectiveness of cohesion policy has also been the subject of academic research.[127] There are no studies with reference to the Danube area in particular. Becker, Egger and von Ehrlich (2013)[128], however, address differences in cohesion policy effectiveness with respect to two dimensions: human capital endowment and the quality of government (absence of corruption and quality of administrative processes). Both of these influence absorptive capacity and

[125] European Commission (2013): Cohesion policy: Strategic report 2013 on programme implementation 2007-2013, p. 5. http://ec.europa.eu/regional_policy/how/policy/strategic_report_en.cfm.

[126] Numbers are own calculations from the "Core indicators" on http://ec.europa.eu/regional_policy/how/policy/strategic_report_en.cfm.

[127] See, for instance, Becker, Sascha O, Egger, Peter H and Maximilian von Ehrlich (2010), "Going NUTS: The effect of EU Structural Funds on regional performance", Journal of Public Economics 94(9-10), 578-590, and Mohl, Phillip, and Hagen, Tobias (2010), "Do EU structural funds promote regional growth? New evidence from various panel data approaches," Regional Science and Urban Economics, 40(5), 353-365.

[128] Becker, Sascha O, Egger, Peter H and Maximilian von Ehrlich (2013), Absorptive Capacity and the Growth Effects of Regional Transfers: A Regression Discontinuity Design with Heterogeneous Treatment Effects, American Economic Journal: Economic Policy 5(4): 29-77.

cohesion policy effectiveness positively. Their data relates to 2000 to 2006 and, thus, does not include most of the Danube countries. Of those that are included, only Austria and Hungary have significantly positive growth effects, while effects in the Czech Republic, Slovakia and Slovenia are not statistically significant.

The positive overall evaluation of the structural funds is partly due to special support programmes, such as JASPERS (Joint Assistance to Support Projects in European Regions). Along with other programmes such as JEREMIE (see chapter 5.2) and JESSICA, JASPERS is a special support instrument provided by the European Commission. It was set up to improve the implementation of cohesion policy in the New Members States in Central and Eastern Europe in the programming period 2007-2013. In this framework, the European Commission collaborates with the EIB, the EBRD and the German Kreditanstalt für Wiederaufbau (KfW). The objective is to help Member States to better prepare and implement major infrastructure projects, enabling them to make better use of the available financial resources from the Structural and the Cohesion Funds and to accelerate the implementation of these projects.

According to the European Commission, "there is clear evidence to suggest that projects which have received assistance from JASPERS are approved significantly faster than those which are not."[8] Since the beginning of the JASPERS programme, around 400 assignments have been completed in the in the Danube Region. In Bulgaria, Hungary, Romania, Slovakia and in Slovenia the majority of the projects supported by JASPERS were in the water and waste sector, but there were also several projects in the sector air, maritime and public transport, knowledge economy and energy and in the road sector. With the help of the JASPERS programme, the Member States of the Danube Region were able to raise funds with a total value of around EUR 24.9bn in the period from 2008 to 2012.[129] On average, JASPERS helped with the implementation of more than 90 percent of the Danube country projects submitted to DG Regio either in the planning process or in the application of the projects. Several countries, such as Bulgaria, did not submit any projects without JASPERS assis-

[129] http://ec.europa.eu/regional_policy/thefunds/instruments/jaspers_en.cfm#2

tance. The evaluation report on JASPERS concludes that "on average the availability of JASPERS assistance seems to have reduced the Decision Duration by 114 days".[130] As Croatia joined in 2013, it is now also eligible for JASPERS assistance and some projects even were in preparation before its actual accession.

A final instrument in the context of the structural funds to be considered here is the Instrument for Pre-Accession Assistance (IPA). It offers assistance to countries during the accession process to the European Union (EU) in the period 2007-2013. It consists of five different components:

- Assistance for transition and institution building
- Cross-border cooperation (with EU Member States and other countries that are eligible for IPA)
- Regional development (support for transport, environmental protection, infrastructure, enhancing competitiveness and reducing regional disparities)
- Human resources
- Rural development.

The objective is that eligible countries are supported in building the necessary institutional capacities, so that once they have become EU member states they can absorb and make use of EU funding opportunities more efficiently. The last three components are only open to the group of Candidate Countries (this includes Croatia in the Danube Region), while the other Non-Member States of the Danube Region, namely Serbia, Bosnia and Herzegovina, Montenegro and the Neighbouring Countries the Republic of Moldova and Ukraine, can only benefit from components 1 and 2. In 2010 Montenegro was awarded Candidate Country status but for the time being, it is not yet eligible for component 3.[131]

[130] http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/eval2007/jaspers_evaluation/final_report_131212.pdf (p.41). The number refers to all eligible countries, not only the countries of the Danube Region.

[131] http://ec.europa.eu/regional_policy/thefunds/ipa/works_en.cfm

IPA in Croatia

From 2007 to 2011, the IPA provided Croatia with a budget of about EUR 260m. These IPA funds were used for three multi-annual Operational Programmes. The Environmental Operational Programme (EOP) invests in projects in the waste and water sub-sectors. The Transportation Operational Programme (TOP) invests in projects which will have the greatest impact on the modernisation of several railways, and aims to continue preparing future projects for upgrading and improving inland waterway infrastructure. Finally, the Regional Competitiveness Operational Programme (RCOP) aims to achieve higher competitiveness and a balanced regional development by enhancing SMEs competitiveness, alongside with improving economic conditions in Croatia's lagging areas.[132]

IPA Programmes are divided into several priority axes, depending on the field the programme focuses on. The cooperation programmes aim at supporting the beneficiary countries in the area of cross-border cooperation between themselves, with the EU Member States or within the framework of cross-border or inter-regional actions. They are mostly financed by EU funds. Nevertheless, a national public contribution to the programmes by participating countries has to be made. The national contribution, however, often only makes up a small amount of the total financial resources (total public contribution). For the period from 2007 to 2013, the EU has provided these IPA Programmes with generous financial resources.

- Bulgaria and Serbia: total public contribution of about EUR 25m and an EU investment of about EUR 21m
- Slovenia and Croatia: total public contribution of about EUR 34m and an EU investment of about EUR 29m
- Romania and Serbia: total public contribution of about EUR 42m and an EU investment of about EUR 36m
- Hungary and Serbia: total public contribution of about EUR 40m and an EU investment of about EUR 34m

[132] http://ec.europa.eu/regional_policy/thefunds/ipa/croatia_development_en.cfm

- Hungary and Croatia: total public contribution of about EUR 45m and an EU investment of about EUR 36m

Besides, there are other IPA Programmes that also concern countries that are not part of the Danube Region. For example, there is an IPA Programme that affects Bulgaria and Macedonia with a total public contribution of about EUR 14m and an EU investment of EUR 12m, one affecting Bulgaria and Turkey with a total public contribution of about EUR 22m and an EU investment of about EUR 18m and one affecting all countries being part of the Adriatic Region that among others also involves Slovenia, Bosnia and Herzegovina and Croatia that at the same time are a part of the Danube Region with a total public contribution of about EUR 196m and an EU investment of about EUR 166m.[133]

5.2 European Investment Bank (EIB)

The European Investment Bank (EIB) is the most important international multilateral financing institution in the Danube Region. Being the bank of the European Union, the EIB supports projects that contribute to the implementation of the main EU policy objectives such as growth, employment, economic and social cohesion and environmental sustainability. The EIB's priorities are laid down in its operational plan. The most important of these are:

- Supporting SMEs
- Addressing economic and social imbalances between regions
- Protecting and improving the natural and urban environment
- Promoting innovation through investment in ICT and human and social capital
- Improving and linking regional and national infrastructure of transport and energy
- Supporting a competitive and secure energy supply.

[133] http://stats.oecd.org/Index.aspx?datasetcode=TABLE2A

The EIB regularly finances about one third of a project, but its share can account for up to 50%. With its contribution to important projects and outstanding pilot projects, the EIB encourages investments that would not have been made without its financial assistance due to lack of financial resources. Thus, the EIB has an important leveraging effect especially with respect to other EU funding opportunities under the Structural or the Cohesion Fund. Moreover, with its expertise and experience, the EIB provides technical assistance and essential knowledge.[134]

Table 15 shows EIB lending activities (finance contracts signed) in the Danube Region over the period from 2007 to 2013. In total, lending contracts concluded with Danube countries had a value of close to EUR 55bn (excluding Baden-Wurttemberg and Bavaria[135]). Almost half of this amount was granted to the countries of Member States Area 2, less than a fifth to Austria and to the countries of Member States Area 3. Relatively small amounts went to the Accession Countries and the Neighbouring Countries.

Table 15: EIB lending (signed contracts) 2007-2013 (in billion €)

	2007-2013
Danube	54.7
Member States Area 1 (Austria only)	11.3
Member States Area 2	25.8
Member States Area 3	10.1
Accession Countries	4.9
Neighbouring Countries	2.6

Source: European Investment Bank, Finance contracts signed. Illustration and calculation: IAW.

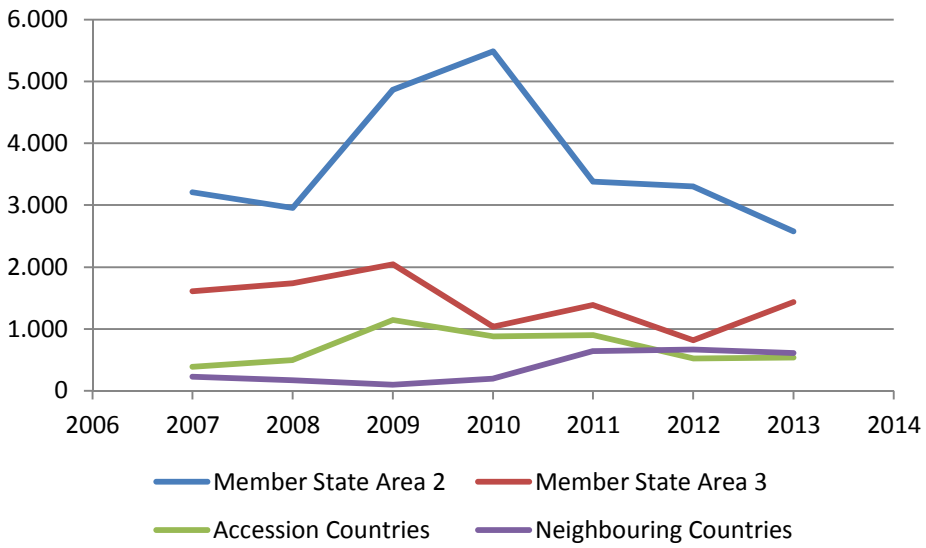
The development over time shows that in most countries EIB lending activities increased significantly during the years after the financial crisis (Figure 114). This was probably due to the fact that it became harder to get access to other

[134] http://www.eib.org/about/index.htm?lang=en)

[135] Figures for the period 2008 to 2012 show that around EUR 8bn were granted to the German Bundesländer Baden-Wurttemberg and Bavaria, which is roughly equal to EIB lending to Austria during the same period. See http://www.eib.org/attachments/country/the_eib_in_the_danube_region_en.pdf.

funding sources. As a consequence, more private and public actors made use of EIB financing. In addition, the EIB was committed to fighting the crisis and therefore expanded lending activities. In other countries, however, lending activities did not increase immediately after the crisis but with a lag of two or three years probably depending on the time when the respective countries where hit most by the crisis or when they were able to undertake some countermeasures against it. Only in Bulgaria and Bosnia and Herzegovina, EIB lending activities decreased during the crisis. The EIB normally only finances one third of a project and the EU funds are only granted if local authorities are able to commit their own funds. This has proven difficult for some Member States during a time of fiscal austerity. This puts at risk the implementation of investments that could increase their growth potential. However, the EIB's structural programme loans help to finance part of the national budget's contribution to investment in a wide range of priority projects in most of the eligible Member States in the Danube Region. By the end of 2012, more than EUR 7bn in EIB loans had helped to generate EUR 80bn of investment.

Figure 114: **EIB Lending Activities in the Danube Region 2007-2013 (in million €)**



Source: European Investment Bank, Finance contracts signed. Illustration and calculation: IAW.

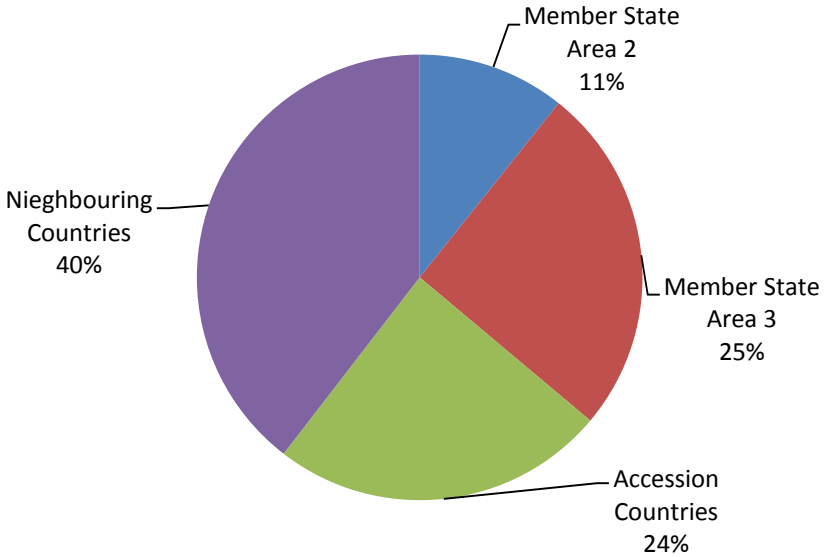
5.3 European Bank for Reconstruction and Development (EBRD)

The EBRD is a multilateral financing institution founded after the fall of the Iron Curtain in order to support the establishment of open and democratic market economies in Eastern Europe. Its shareholders are 64 countries, the EU and the EIB. Recently, the EBRD has expanded its scope also to Central Asia and started lending activities in some of the countries of Northern Africa that needed assistance after the Arab Spring in 2012. In the Danube Region, the EBRD is one of the most active financing institutions, investing especially in projects that otherwise could not be financed as capital markets are not able to provide the necessary funding. The EBRD is committed to environmentally friendly and sustainable development and supports the objectives of EU cohesion policy.

The EBRD normally provides loans from around EUR 5m to EUR 230m and finances about one third of a project. In doing so, similar to the EIB, the EBRD helps countries or its respective public and private actors, which potentially could benefit from EU funding, to raise the necessary funds in order to make better use of the given financial resources. The EBRD defines its "annual business volume" as the "volume of commitments made by the Bank in the year to finance investment operations, including to restructured operations, less cancellations or sales of such commitments within the same year". From 2008 to 2012, its total annual business volume was of about EUR 40bn from which EUR 8.9bn were assigned in the year 2012. From the 2012 business volume, about 28% were allocated to the corporate sector, some 20% to the energy sector, about 32% to financial institutions and the remaining 20% were allocated to investments in infrastructure. In 2011 and 2012, the EBRD´s annual business volume in the Danube Region amounted to EUR 2.8bn each year, which accounted for 30% of the EBRD´s total annual business volume in 2011 and 32% in 2012. [136]

[136] http://www.ebrd.com/pages/about/what.shtml

Figure 115: EBRD´s Annual Business Volume in the Danube Region 2011

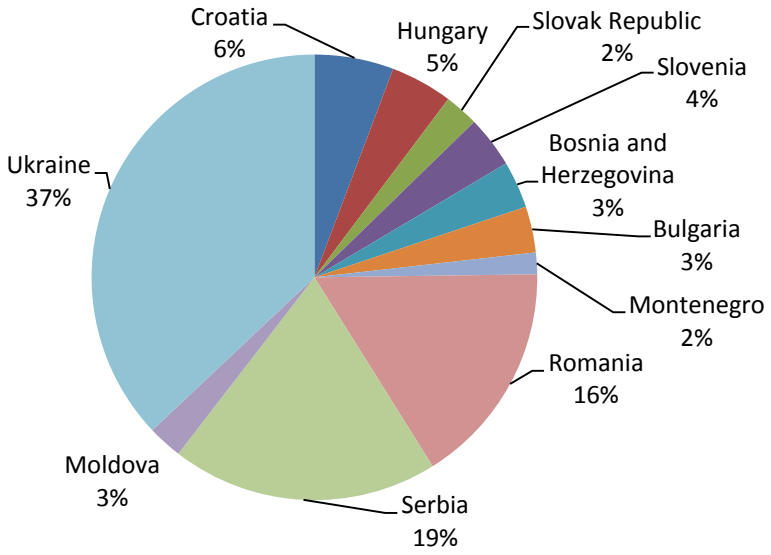


Source: EBRD Annual Report 2012. Illustration and calculation: IAW.

In the Danube Region, only Germany, Austria and the Czech Republic, where the EBRD has not made any new investments since 2008, are not within the scope of EBRD lending activities. Among the remaining countries, the EBRD is most active in the Neighbouring Countries, namely Moldova and Ukraine. These two countries accounted for about 40% of EBRD's annual business volume in the Danube Region in 2011, followed by the group of Member State 3 countries and the Accession Countries with almost equally 25% (Figure 115).

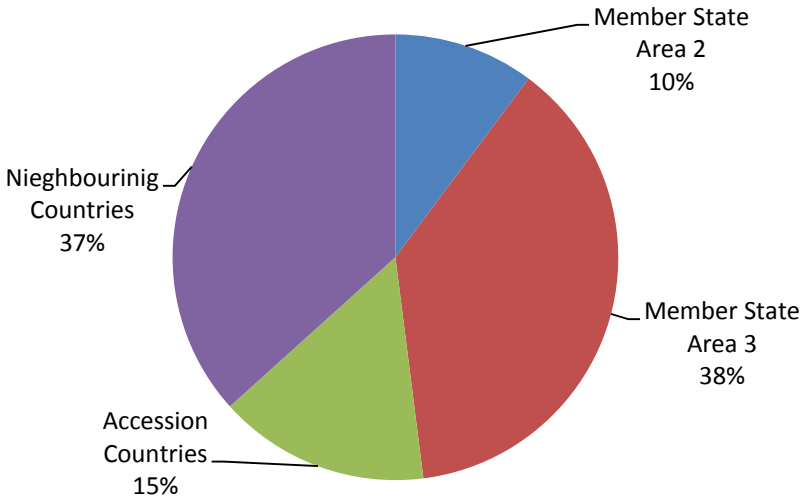
Comparing between the years 2012 and 2011, it is noteworthy that ERBD´s annual business volume has increased significantly in Member States Area 3, both in absolute and in relative terms, whereas the EBRD´s activities remained almost constant in the Neighbouring Countries (Figure 115 and Figure 117). This is mostly due to an increase in lending activities in Bulgaria and Romania (Figure 116 and Figure 118). There are several explanations for this development; one possible explanation is these countries managed to leave the crisis behind and had better financing conditions in order to engage in investment projects.

Figure 116: EBRD´s Annual Business Volume in the Danube Region 2011



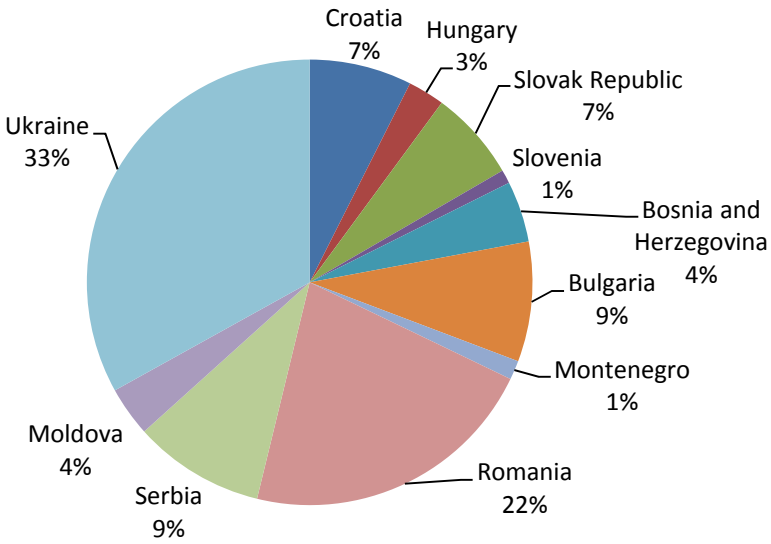
Source: EBRD Annual Report 2012. Illustration and calculation: IAW.

Figure 117: EBRD´s Annual Business Volume in the Danube Region 2012



Source: EBRD Annual Report 2012. Illustration and calculation: IAW.

Figure 118: EBRD´s Annual Business Volume in the Danube Region 2012



Source: EBRD Annual Report 2012. Illustration and calculation: IAW.

5.4 Council of Europe Development Bank (CEB)

The CEB is a multilateral development bank with a social vocation, focusing on activities that contribute directly to strengthening social cohesion in Europe. The CEB represents a major instrument of aid policy in Europe, which aims to achieve sustainable and equitable growth. Therefore it participates in financing social projects that improve the living conditions of the most disadvantaged population groups. The CEB contributes to the implementation of socially oriented investment projects through four sectorial lines of action. These are strengthening social integration, managing the environment, supporting public infrastructure with a social vocation and supporting Micro-, Small and Medium Sized Enterprises (MSMEs).[137]

In the 2008 to 2012 period, the total value of projects approved by the CEB in the countries of the Danube Region was of about EUR 2.3bn. There has been a decline of activities in the Danube countries: whereas in 2011, the value of the

[137] http://www.coebank.org/Contenu.asp?arbo=74&theme=1)

projects approved in the Danube Region amounted to EUR 796.1m, the volume amount decreased to EUR 371m in 2012.

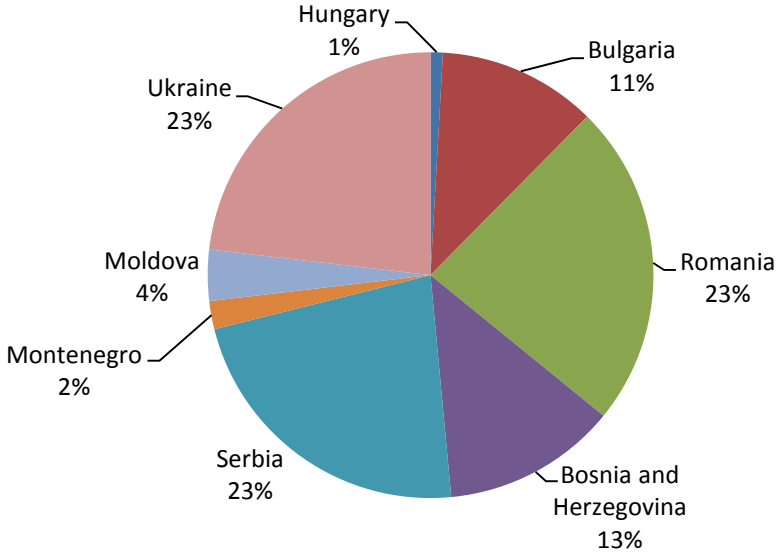
5.5 International Financing Institutions

World Bank

The World Bank Group is an active player in the countries of the Danube Region. It consists of several institutions; the focus here is on the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). In order to assess their activity in the Danube Region, we take a closer look at the data provided by the World Bank itself for IBRD loans and IDA credits (DOD, current US$) in the period from 2003 to 2013.

Not all countries of the Danube Region are part of World Bank lending programmes. Austria, Croatia, the Czech Republic, Germany, Slovakia and Slovenia did not receive any loans or credits from these institutions during this period. Only Hungary, Bulgaria, Romania, Bosnia and Herzegovina, Serbia, Montenegro, Moldova and Ukraine received loans and credits. These amounted to USD 120bn between 2003 and 2013. Figure 119 shows that around 23% of these were allocated to each Romania, Serbia and Ukraine. Relative to population and GDP, World Bank activities were most important in Serbia, probably due to the aftermath of its military conflicts in the 1990s and the resulting reconstruction work. In the same period, USD 15bn each were granted to Bulgaria and Bosnia and Herzegovina. Relative to population and GDP, World Bank lending is more important in Bosnia and Herzegovina than in Bulgaria. From 2003 to 2013, the value of the loans and credits allocated to the Republic of Moldova by the IBRD and the IDA amounted to around USD 4bn (4% of total Danube lending), for Montenegro this amount was about USD 2bn (2%) and for Hungary only about USD 1bn (less than 1%).

Figure 119: IBRD Loans and IDA Credits to the Danube Region 2003-2013



Source: World Bank, IBRD loans and IDA credits (DOD, current US$). Illustration and calculation: IAW.

The development of World Bank lending in the Danube Region over time shows that in Bulgaria and Serbia, lending activities fluctuated a little but remained more or less constant. The same is true for Montenegro after its independence. By contrast, lending in Bosnia and Herzegovina, Romania, Moldova and Ukraine has increased since 2003. In addition, in most of these countries this trend accelerated in the years after the crisis. Only in Hungary did World Bank lending activities, which already started at a very low level, decrease and nearly stopped towards the end of the observation period. Taken together, World Bank lending activities relative to GDP are more important in the Balkan countries than in the other regions. In most of the Danube countries in which the World Bank is active, lending increased after the financial crisis.

International Monetary Fund

The IMF‘s activities are centered around macroeconomic stability and reducing poverty The IMF generally deals with crisis prevention in order to stabilize the balance of payments and avoid public default; it imposes conditions in form of macroeconomic programmes which the government is obliged to implement in exchange for the loan. Table 16 shows IMF loans (purchases) for the 2007-2012 period. Purchases are total drawings on the General Resources

Account (GRA) of the IMF during the year specified, excluding drawings in the reserve tranche. Only 6 out of 15 countries and regions in the Danube Region received financial support between 2007 and 2012.

Table 16: IMF purchases (DIS, in Million US$)

Country Name	2007	2008	2009	2010	2011	2012	Sum
Bosnia and Herzegovina	0	0	282	237	0	155	674
Hungary	0	6,663	5,278	0	0	0	11,941
Moldova	33	36	0	183	158	153	563
Romania	0	0	9,391	5,664	1,213	0	16,267
Serbia	0	0	1,575	458	74	0	2,106
Ukraine	0	4,742	6,170	3,433	0	0	14,346
Total	33	11,441	22,696	9,976	1,443	308	45,898

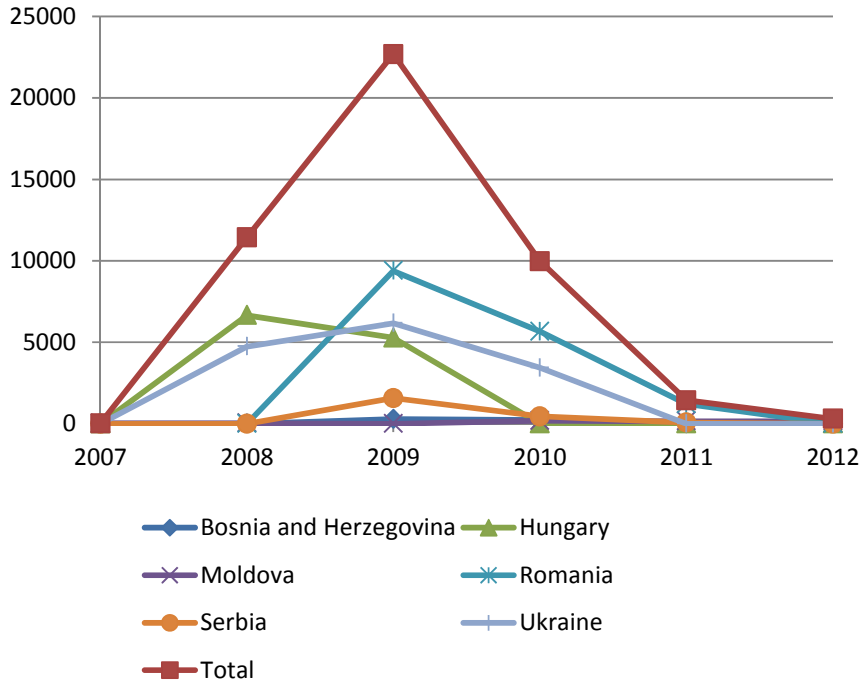
Source: World Bank, IMF purchases (DIS, current US$). Illustration and calculation: IAW.

The recipient countries belong to Member States Area 2 (Hungary), Member States Area 3 (Romania), the Accession Countries (Bosnia and Herzegovina, Serbia) and the Neighbouring Countries (Ukraine, Moldova). In general, a spike can be observed form 2007 to 2009 that subsequently diminishes, probably due to increased support during the worst period of the financial and sovereign debt crisis. But the aggregated view hides considerable differences between the countries. For example, Hungary only received loans in 2008 and 2009, whereas Moldova consistently received loans, except for 2009. The largest disbursements were given to Romania, with a sum of USD 16,267m, followed by Ukraine (USD 14,346m), Hungary (USD 11,941m). In comparison, Serbia (USD 2,106m), Bosnia and Herzegovina (USD 674m) and Moldova (USD 563m) received relatively small loans. Note that in in the period under discussion, for EU member states the loans were not given out by the IMF alone, but joint with other partners, e.g. from 2009-2011 there was a BOP assistance programme for Romania.[138]

The change in purchases over time can be detected easily when looking at Figure 120.

[138] http://ec.europa.eu/economy_finance/assistance_eu_ms/romania/index_en.htm

Figure 120: IMF purchases (disbursement, in Million US$)



Source: World Bank, IMF purchases (DIS, current US$). Illustration and calculation: IAW.

To alleviate poor financing conditions in low-income countries, the IMF created the Poverty Reduction and Growth Trust (PRGT), which is part of a new framework of the Fund's concessional lending facilities for low-income countries approved in January 2010.[139] Among the Danube Countries, only Moldova received disbursements from this special fund. As of January 2014 and considering all years starting in 2003, flows were only registered by the IMF between 2006 and 2012, except 2009. In sum, Moldova received USD 259m (Table 17).

Table 17: PRGT disbursements to Moldova between Jan 1rst 2003 and Jan 31rst 2014 (in Million US$)

2006	2007	2008	2009	2010	2011	2012	Sum
43.41	21.71	22.88	0	80.0	60	30.88	258.88

[139] https://www.imf.org/external/np/exr/facts/concesslending.htm

Source: IMF, PRGT disbursements. Illustration and calculation: IAW.

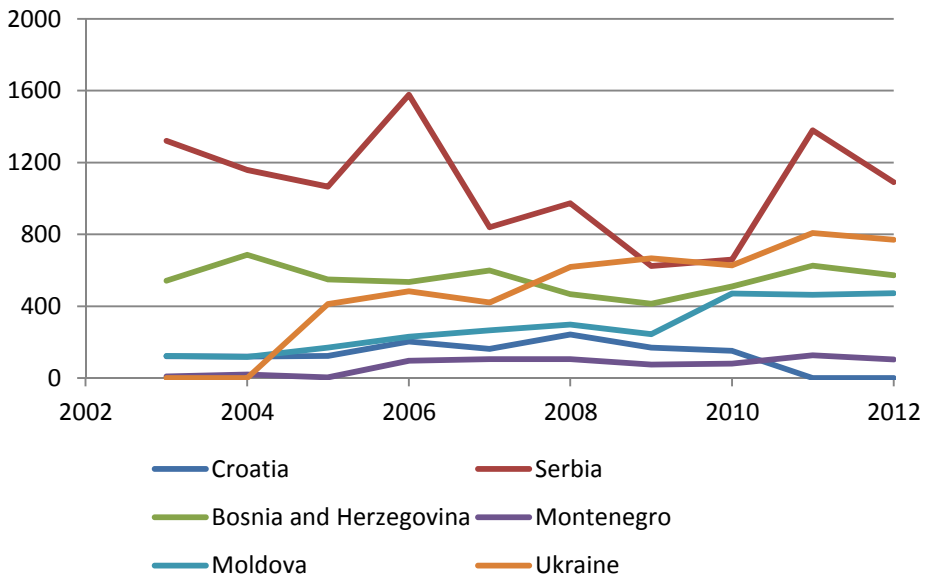
5.6 Official Development Assistance

The term Official Development Assistance (ODA) is defined by the OECD as *"flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. Lending by export credit agencies—with the pure purpose of export promotion—is excluded."*[140] In the Danube Region, with the exception of Croatia, only the Accession Countries, i.e. Bosnia and Herzegovina, Serbia and Montenegro, and the Neighbouring Countries, Moldova and Ukraine, received ODA during the last ten years. Since 2011, Croatia has ceased to receive ODA (Figure 121). The reason why the Balkan Countries have received more than $18bn of ODA since 2003 can still be found in the military conflicts during the 1990s, when large parts of this region and its infrastructure were damaged. This is why this region in many areas still lags behind and therefore is one of the economically weaker regions within the Danube Region. The Republic of Moldova and Ukraine also belong to the economically weakest countries of the Danube Region and since 2003 were paid around $ 7.5bn of ODA.

Looking at ODA per capita instead of total ODA per country reveals a somewhat different pattern (Figure 121). ODA tends to be higher in countries with smaller population size. For instance, ODA per capita is relatively low in Ukraine although it is one of the countries that receive most ODA in the Danube Region.

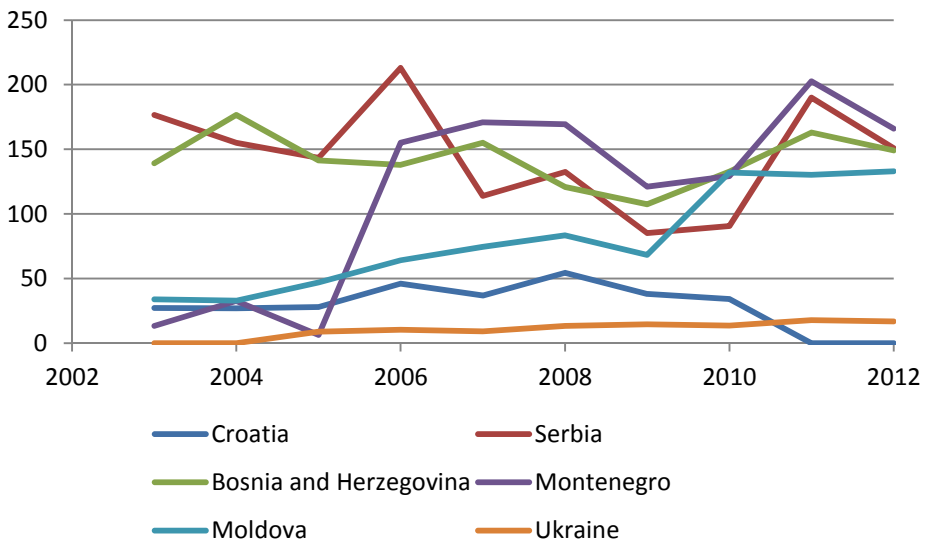
[140] http://stats.oecd.org/glossary/detail.asp?ID=6043

Figure 121: ODA Total Net (in million US$)



Source: OECD: Aid (ODA) disbursements to countries and regions. Illustration and calculation: IAW.

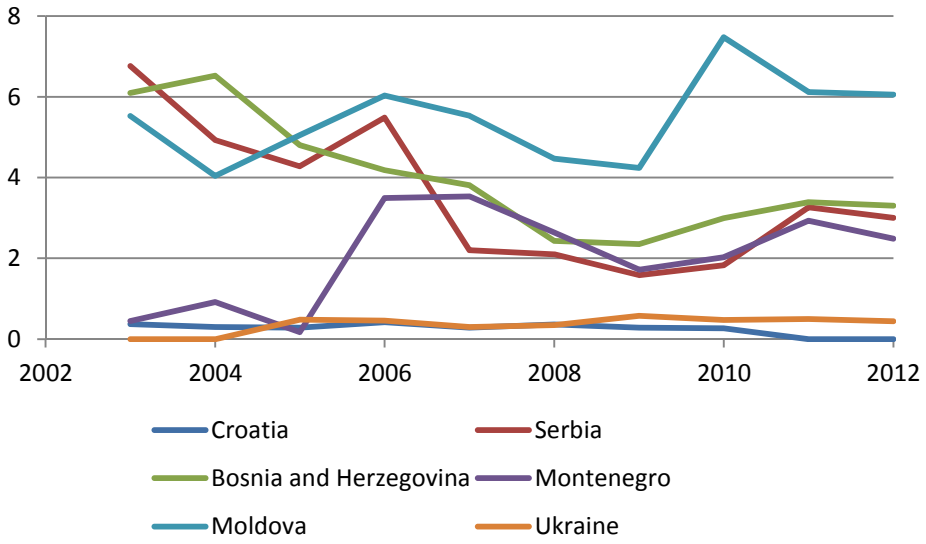
Figure 122: ODA per Capita (in US$)



Source: OECD: Aid (ODA) disbursements to countries and regions. Illustration and calculation: IAW.

Figure 122 also points to a strong rise in ODA per capita in Montenegro between 2005 and 2006. Clearly, this has to be put into context with Montenegro's independence in 2006.

Figure 123: ODA (in % of GNI)



Source: OECD: Aid (ODA) disbursements to countries and regions. Illustration and calculation: IAW.

Figure 123 shows that in Croatia and in Ukraine ODA is only a very small portion of total GNI, suggesting that these two countries are mostly independent of ODA. This can be due to the fact that these countries receive less ODA in absolute value or due to the fact that total GNI is simply much bigger than in the other countries considered and therefore ODA is less important for these countries. In the first graph we saw indeed that Croatia received only little ODA in absolute value and since 2011 has not received any which means that Croatia´s situation has improved a lot in the last years. However in Ukraine ODA flows increased in absolute value in the last years but because of the size of the country and its larger GNI, ODA still has only a small share in GNI.

In Bosnia and Herzegovina and Serbia, the share of ODA in GNI started at a very high level of around 6 or 7 per cent in 2003. Subsequently, this share has decreased first and then moderately increased after 2008, possibly because of the economic crisis. In both countries, ODA currently amounts to three per cent of GNI. The share of ODA in GNI in Moldova also started at a high level of

more than 5 per cent and then strongly increased in the aftermath of the economic crisis; with about six per cent, it is now at the highest level of all countries in the Danube Region. In Montenegro, the ODA share in GNI started at a very low level and then increased to a level of less than three per cent.

5.7 Implications for competitiveness

There is a multitude of institutions providing external financing and aid to the countries of the Danube area. However, the effects of the different instruments on competitiveness and growth in the Danube area are difficult to assess.

Quantitatively, EU cohesion policy is particularly important as far as the EU member states are concerned. Many existing studies show that the structural funds have a positive effect on growth. However, they also point to differences in the effectiveness of cohesion policy. These are partly driven by differences in absorption rates, which range from less than 40% to 65% in the Danube Area. These differences are partly due to the lack of co-financing in some countries, but the literature also points to differences in government effectiveness and administrative capacities.

Another issue is to which extent the programmes and projects funded by cohesion policy contribute to competitiveness and growth. Spending in different areas (such as eduction, research and development, environment etc.) is likely to have a different effect on long-run economic development. A study by Borgloh et al. (2012)[141] shows that the share of structural funds allocated to areas with a high impact on growth varies substantially between EU member states. This suggests that a redistribution of funds could enhance their effectiveness on growth and competitiveness.

Financing institutions such as the EIB and the EBRD are essential for financing infrastructure, education and innovations. With a particular focus on small and medium-sized companies, the EIB is likely to enhance growth and job creation

[141] Borgloh, Sarah; Friedrich Heinemann; Florian Misch; Christoph Schröder; Mustafa Yeter (2012): Growth-Enhancing Expenditure in EU Cohesion Spending from 2007 to 2013, Final Report to the Federal Ministry of Finance, ZEW Mannheim

in the SME sector. Different institutions also have a different regional focus; for instance, the EBRD is more active than the EIB in the Neighbouring and Accession Countries.

The counties within these regions are also recipients of loans and credits of the World Bank and Official Development Assistance (ODA). Enhancing competitiveness is one of three pillars of the World Bank's lending strategy; the other two are social inclusion and climate policy. Recent World Bank projects in the Danube Area concerned tax administration, infrastructure, business environment and policies conducive to innovation, as well as policies that strengthened financial sector regulations (World Bank, 2013).[142]

A complex evaluation system has been set up to monitor the effectiveness of World Bank projects on a regular basis, including the validation of the Independent Evaluation Group (IEG). A cost-benefit analysis performed by the IEG (2010) suggests that the implementation of market-oriented reforms positively influences the rates of return of World Bank projects.[143] For instance, the rates of return in Romania and Bulgaria more than doubled after the implementation of reforms in the late 1990s (IEG 2010, Table C2). This underlines that the provision of funds is only a necessary but not a sufficient condition for an increase in competitiveness and growth. Institutional quality, as discussed in other parts of this report, and economic capacity crucially determine whether the provision of finance unleashes economic competitiveness and dynamics.

[142] World Bank (2013): Annual Report. World Bank, Washington, DC

[143] Independent Evaluation Group (IEG) (2010): Cost-Benefit Analysis in World Bank Projects. World Bank, Washington, DC

6 Cooperation and Cooperation Potential in the Danube Region

The Danube Region represents an innovative mode of territorial cooperation of different regions and nations, with balanced and sustainable development as a shared goal. The Danube Region is defined as not being a further institutional level within the EU (like states, regions, municipalities, etc.) but rather a network, a joint initiative involving several European, national and regional stakeholders, policies and funding programmes. Thus it is mainly a bottom-up process where learning from best practice and mobilizing initiatives take the leading role.

The aim of this chapter is to provide an overview of the existing organisations and networks related to economic cooperation in the Danube Region and to come to conclusions and recommendations to enhance competitiveness by more active cooperation. The chapter was written at a point of time when initiatives which formed the European competitiveness programmes for 2007-2013 are coming to an end. It is not clear yet which of the programmes will continue and in what form in the future, thus some of the frameworks mentioned here may become redundant for further analysis.

There is a long history of institutional cooperation in the Danube Region but only few of the cooperation projects and institutions have been set up under the umbrella of the EUSDR. This chapter lists the existing organisations and networks, within the DR and beyond, related to economic cooperation in the Danube Region in order to come to conclusions and recommendations to increase cooperation and competitiveness[144].

[144] Organizations are presented based on their world-wide web information. Also direct contacts have been established with some cooperation structures set up under the EUSDR.

6.1 International cooperation of administrative bodies in the Danube Region and beyond

6.1.1 Political cooperation networks

Countries and various other administrative bodies cooperate in the Danube Region based on proximity and joint interests. Some of them are part of the EU; others receive EU support to intensify cooperation as future or potential candidate countries. Regions of the former Soviet Union belong to countries of the European Neighbourhood and the CIS. Cooperation projects both along these division lines and in a broader context. In the following we list those organisations that already have or may have in the future some role in enhancing cooperation in the Danube Region. We cover

Visegrad Group

Established in 1991 the Visegrad Group (V4) comprises the Czech Republic, Hungary, Poland and Slovakia – three of which are in the Danube Region. The backbone of this cooperation consists of mutual contacts at all levels, from the highest-level political summits to expert and diplomatic meetings, to activities of the non-governmental associations in the region, think-tanks and research bodies, cultural institutions or numerous networks of individuals. The V4 was a vehicle of EU and NATO accession and remains an important network to support joint interest of members in the EU. The V4 may set an example what level of cooperation may be achieved in the Danube Region in the various fields of activities. The Hungarian Presidency in the Visegrad Group (2013–2014) set various economic targets from energy security through transport connection to cluster cooperation. The related document states that "the regional cooperation of states in the framework of the EU macroregional strategies like the EUSDR are aiming mainly at the improvement of security, prosperity and the sustainability of the given macro region in a coherent way. These tools stretching across the counties of the Visegrad Group could play an important role during the next budgetary period to achieve major development goals of the V4, in terms of North-South infrastructure connection as well as in boosting growth and rising employment, improvement of R&D capacities and acceleration of the technology transfer. Through a strategic V4 thinking, cooperation and new partnerships, based on shared interest the V4 should enhance the efficiency of these tools in our region, in practice these

actions could serve as a bridge concerning the institutional cooperation between the Baltic and the Danube Regions." http://www.visegradgroup.eu/about/cooperation

An activity of the V4 is the ClusterCOOP Project led by the Hungarian Ministry of National Economy in the framework of the EU's Central Europe Programme. It was initiated on the basis of a Memorandum (signed on 26 November 2009) on cooperation of V4 countries in the field of clusters. It also incorporates Slovene, Italian and German partners. It will terminate by March 2014 after approval of its results by a ministerial conference planned for autumn 2013 in Bratislava. The results are expected to support the preparation for the next Multiannual Financial Framework (MFF) period 2014–2020.

Central European Initiative (CEI)

The CEI is an intergovernmental forum promoting political, economic, cultural and scientific cooperation among its Member States. Its core mission is: Regional Cooperation for European Integration. Moreover, the CEI considers itself in a unique position to act as a bridge between macro-regions, such as the Baltic, Danube, Adriatic and Black Sea Regions. Member states include all Danube Region countries minus Germany plus some neighbouring non-EU members. The CEI Cooperation Activities are projects of small scale and limited duration, which mainly take the form of seminars, workshops, short training courses or other kind of meetings. CEI participates in EU Projects, has a Know-how Exchange Programme, a University Network and a Science and Technology Network. http://www.cei.int

6.1.2 Transnational programmes under the European Territorial Cooperation Objective

(http://ec.europa.eu/regional_policy/atlas2007/transnational/index_en.htm)

Central Europe

Central Europe is a EU programme that encourages cooperation among the countries of central Europe to improve innovation, accessibility and the environment and to enhance the competitiveness and attractiveness of their cities and regions (www.central13.eu). The programme is financed by the European Regional Development Fund and runs from 2007 to 2013. CENTRAL EUROPE

invests € 231m to provide funding to transnational cooperation projects involving public and private organisations from Austria, the Czech Republic, Germany, Hungary, Italy, Poland, Slovakia, Slovenia and Ukraine (seven countries are part of the Danube Region). The programme has four priority areas supporting projects in these specific areas. Two of them are linked to improving competitiveness.

Priority 1: Facilitating innovation across Central Europe

Innovation is a key driver for strengthening Central Europe's competitiveness and it is a top policy priority for the EU. Projects under this priority aim at improving the climate for innovation in all regions and enabling them to make better use of their innovation potential. They create favourable framework conditions for innovation and build up capabilities for the effective transfer and application of innovation. They also foster knowledge development and help people to obtain the qualifications they need for the knowledge-based economy.

Priority 4: Enhancing competitiveness and attractiveness of cities and regions

"European cities and regions attract investment and employment by offering economic opportunities and a high quality of life. Cities and regions can do a lot to improve their attractiveness and competitiveness and, thus, to contribute to economic growth and more and better jobs. Projects under this priority aim at improving the quality of life in cities and regions and promote sustainable urban development. They support polycentric development to avoid disparities within urban areas that are due to social and spatial segregation, and they address demographic and social change, as well as the protection, preservation and exploitation of cultural resources."

Mediterranean

The transnational cooperation programme supports cooperation projects between Cyprus, France, the United Kingdom, Greece, Italy, Malta, Portugal, Slovenia, Spain (with participation of Croatia, Bosnia and Herzegovina, Montenegro and Albania with IPA funds) for the period 2007-2013.

Alpine Space Programme

This transnational cooperation programme supports cooperation projects between Germany, France, Italy, Austria and Slovenia (with participation from Liechtenstein and Switzerland) for the period 2007-13.

DANUBE 2014-2020

In December 2012 the EC proposed to create a new transnational cooperation programme comprising the DR for the 2014-2020 period. The preparation of the new programme is conducted by the Programming Task Force: a committee of representatives from all the Danube partner states'. The Danube Operational Programme, which will serve as a basic document for the implementation of the transnational programme.

Thematic priorities of the Danube programme will be defined in line with the relevant draft EC legislation, the national priorities of Partner States, and reflect the needs of the programme area. Topics to be addressed by programme priorities may include many of traditional transnational cooperation topics, like innovation, transport, environment, etc.

Implementation of the programme will be coordinated by joint structures set up in Budapest, Hungary. Implementing structures of the programme are designed in a new institutional setup, taking into account simplification and transnationality as guiding principles.

6.1.3 Regional cooperation in South-East Europe with EU support preparing for membership

Regional Cooperation Council (RCC)

The Regional Cooperation Council (RCC) was launched by the Ministers of Foreign Affairs of the South-East European Cooperation Process (SEECP) in 2008, as the successor of the Stability Pact for South Eastern Europe. Through a regionally owned and led framework, the RCC focuses on promotion and enhancement of regional cooperation in South East Europe (SEE) and supports European and Euro-Atlantic integration of the aspiring countries. The RCC provides operational capacities to and works under the political guidance of the SEECP. The work of the RCC focuses on the priority areas of economic and

social development, energy and infrastructure, justice and home affairs, security cooperation, building human capital, and parliamentary cooperation as an overarching theme. The organisation develops and maintains close working relationships with all relevant actors and stakeholders in these areas, such as governments, international organisations, international financial institutions, regional organisations, civil society and the private sector. The RCC participants comprise 46 countries, organisations and international financial institutions includes all countries participating in the Danube Region except Germany and Ukraine; further European countries as well as international organisation like the EU and NATO also participate. The activity of the RCC is not directly linked to the EUSDR although most of its member states and policy goals are identical. www.rcc.int

Various activities of RCC cover different sets of countries but the West-Balkan countries comprise the core. In the Economic and Social Development priority area, the RCC is partnering with 10 regional initiatives – four promoting business and investment climate in the SEE as outlined below.

South East Europe Investment Committee (SEEIC)

SEEIC is a high-level coordination body that supports the implementation of policies promoting foreign and domestic investment. http://www.seeic.rcc.int Members of SEEIC include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The Former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania, Serbia, with Kosovo* as an observer. SEEIC was empowered to engage in the SEE 2020 vision-building and placed into regional ownership. SEEIC currently has three main objectives:

- Development of the South East Europe 2020 Strategy (jointly with the SEE countries), based on 5 growth pillars: 1) integrated, 2) smart, 3) sustainable and 4) inclusive growth underpinned by 5) governance for growth
- Increasing competitiveness and enhancing regional value chains
- Promoting the SEE region as an attractive investment destination

Central European Free Trade Agreement 2006 (CEFTA)

CEFTA, in its current form, came into existence through the Agreement to amend and enlarge the Central European Free Trade Area in 2006 and signed by Albania, Bosnia and Herzegovina, Croatia, Macedonia, Moldova, Montenegro, Serbia and UNMIK on behalf of Kosovo. The main objectives of the agreement are to expand trade in goods and services and foster investment by means of fair, stable and predictable rules, eliminate barriers to trade between the members, provide appropriate protection of intellectual property rights in accordance with international standards and harmonise provisions on modern trade policy issues such as competition rules and state aid. www.cefta.org

The Regional Rural Development Standing Working Group of SEE (RRDSWG)

RRDSWG is an intergovernmental organisation for regional rural development in SEE, which aims to empower and promote sustainable agriculture and rural development through networking and permanent cooperation between stakeholders in the SEE region.

7.1.4 Danube Region countries in other macroregions

The Adriatic-Ionian Macroregion

The Adriatic-Ionian Macroregion is not a geographical region with predefined boundaries; it is a functional area, composed of national, regional, and local bodies coming together to tackle a number of shares issues and it involves in territories in Albania, Bosnia- Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia and Slovenia. Together with other two European macro- regions, the Baltic Sea and the Danube, the Adriatic- Ionian Macroregion is the connection between Northern and Southern Europe.

The intergovernmental cooperation among the eight Participating Countries has been constantly upgraded in 2012-2013. Nine projects proposals were co-financed during 2013. Projects aimed at increasing cooperation in priority areas such as tourism, rural development, small and medium enterprises and the support to the establishment of the Adriatic and Ionian Macro Region.

Macro-Regional Strategy starting in 2014 focuses on key areas for the region: 1) Driving innovative maritime and marine growth, 2) Connecting the Region, 3) Preserving, protecting, and improving the quality of the environment, and

4) Increasing regional attractiveness. An effective Strategy for the Adriatic and Ionian Region will increase co-operation between all the countries involved, help boost jobs and growth, and will also contribute to the EU integration of the candidate/ potential candidate countries in the Region. http://www.aii-ps.org/index.php/adriatic-ionian-macroregion

BSEC - Organisation of the Black Sea Economic Cooperation

The BSEC came into existence in 1992 as a multilateral political and economic initiative aimed at fostering interaction among the Member States (Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Serbia, Turkey and Ukraine), as well as to ensure peace, stability and prosperity, encouraging friendly and good-neighbourly relations in the Black Sea region. http://www.bsec-organization.org

EUROLINK-House of Europe is the co-ordinator of the Black Sea - Danube Regional Network for Social & Economic Innovation, which was launched in 2011. Within an institutional partnership with the National Coordinator of the EU Strategy for the Danube Region, the Regional Network plays the role of integrator of initiatives and partnerships between the Black Sea and the Danube areas.

6.2 Business and cluster cooperation programmes involving DR countries

Fostering competitiveness is in the focus of activity for several EU and transnational initiatives. One group of initiatives in related to business organisations like chambers of commerce, another type supports the cross-border cooperation of clusters.

7.2.1 Business cooperation programmes

Enterprise Europe Network

The Enterprise Europe Network is a key instrument in the EU's strategy to boost growth and jobs. Bringing together close to 600 business support organisations from more than 50 countries, the Network helps small companies seize business opportunities in the EU Single Market. The Network member organisations include chambers of commerce and industry, technology cen-

tres, research institutes and development agencies. Most of them have been supporting local businesses for a long time. The members are linked up through powerful databases, sharing their knowledge and sourcing technologies and business partners across all Network countries. They are also closely linked with the EC, which enables them to keep abreast of EU policies and to feed small companies' views on them back to Brussels. Services of the Network include:

- Technology transfer
- Access to finance
- Advice on EU law and standards
- Advice on Intellectual Property Rights (IPRs)
- Speak up on EU law
- Research funding – support to companies to find partners for FP7 projects
- Going international – brokerage services

All 14 countries of the Danube Region have Enterprise Europe Network points. There is no sub-network for the Danube Region countries. http://een.ec.europa.eu/about/branches.

European Association of Development Agencies (EURADA)

The EURADA has a membership of about 130 regional development agencies from across the EU. It runs conferences and seminars and has an extensive publications programme. It keeps its members up-to-date with EU policy developments and provides briefing on critical issues such as state aid rules. It alerts members to funding and contract opportunities and helps with forming and running partnerships. EURADA lobbies and briefs the EC on behalf of members and maintains a communications network there. Countries from the Danube area involved are Austria, Bosnia and Herzegovina, Bulgaria, Czech Republic, Romania, Serbia and Slovakia.

Association of the European Chambers of Commerce and Industry (Eurochambers)

Eurochambers represents, serves and promotes member chambers through:

- strengthening the voice and position of European chambers as significant, respected, valued influencers of EU affairs on all major economic issues;
- developing the participation of European chambers in projects of value to business;
- delivering services to the members, and developing a European network of services for enterprises.

C.R.E.A.M. Europe PPP Alliance

This is a European Public Private Partnership Association and the acronym stands for COMMUNITY, REALIZATION, EUROPE-AN, AID, MASTERPLAN. C.R.E.A.M. As a "think tank and learning organisation" it promotes and initiates PPP projects in infrastructure as a sustainable regional development strategy. The network consists of 9 national public private partnership associations and over 200 PPP units worldwide. (www.cream-europe.eu)

Vienna Economic Forum (VEF)

The aim of the VEF is popularising and promoting investment opportunities in the region from the Adriatic to the Black Sea. Providing impulses and pointing out – on the basis of research – the joint projects required in the region for short-term, medium-term and long-term realisation, and promoting their implementation. Becoming a place of definition, encounter, and of realising the public and private interests in connection with the various projects in the region as part of the United Europe. The members are companies and organisations from a wide region covering all Danube Region countries. http://www.vienna-economic-forum.com

Business Advisory Council for Southeastern Europe and Eurasia (BACSEE)

BACSEE is an advisory body composed of some 35 international investors and business representatives from more than 20 countries, whose experience and activities span across a wide range of sectors which are key to regional growth and development. The network calls for effective public-private partnerships and communication on cross-border cooperation, competitiveness, good gov-

ernance, human capital, infrastructure, and regional trade and investment. BAC works in close cooperation with the EC, various IFIs (such as the World Bank and the EBRD) and development organisations(such as OSCE and OECD), as well as regional bodies and local business communities. As such, BAC is regularly invited to contribute to regional and international policy-making forums, and holds meetings and missions in various centres of the region. Annual activities are highlighted by a highly-profiled event, which brings together key policy makers from the sphere of business, finance, politics and academia.

Association of Balkan Chambers (ABC)

The Association of Balkan Chambers of Commerce was established in 1994 with the aim of assisting business activities in the Balkans. Members include Chambers of Commerce and Industry of Albania, Bulgaria, Greece, The Former Yugoslav Republic of Macedonia, Montenegro, Romania, Turkey and Serbia. Its activity thus stretches beyond the SEE and Danube Region. The main priorities of ABC are: development of cooperation among the business communities in the Balkan region, as well as with third parties; encouragement and support of activities aimed at structural changes in the economies of Balkan countries with the view to EU accession; initiation and implementation of global interest projects for the Balkan region; representing, through the Association, interests of the member Chambers in front of international bodies; joint participation in EU programmes and other partnership programmes.

7.2.2 Cluster network cooperation programmes

The international cooperation of clusters has been initiated by the EC DG Enterprise and Industry. A network of European cluster institutions and programmes were set up in order to spread the idea and support the cooperation of clusters. Related projects were financed in the 2007-2013 period both by DG Enterprise and DG Regio. These projects have brought together clusters, universities, regional development agencies and other government agencies of several countries on a seemingly ad hoc, voluntary basis. Some of these networks include organisations from the Danube Region and other EU members, while there are also some which operate only in the Danube Region. In the 2007-2013 financing period the EUSDR was not among the cooperation initiatives supported by the EC. Initiatives comprising some of the EU member states in the Danube Region were included in the Central Europe Programme.

There were also separate programmes in the Transnational Cooperation Programme for South East Europe as well as programmes for cross-border projects between members and non-members. This section covers the initiatives which provide the framework for cluster cooperation. Specific initiatives involving DR countries are listed in the chapter on cluster development.

Cluster policy at EU level

The EU cluster policy is based on the idea that: “Clusters are powerful engines of economic development and drivers of innovation in the EU. They provide a fertile business environment for companies, especially SMEs, to collaborate with research institutions, suppliers, customers and competitors located in the same geographical area.” (http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/index_en.htm) According this website, there are about one thousand clusters in Europe and nearly as many cluster organisations.

More recently, cluster development policy is a part of innovation policy helping companies to perform better and contributing to growth, jobs and sustainability. The Commission's Communication entitled "Towards world-class clusters in the EU: Implementing the broad-based innovation strategy" is the guiding document for the 2014-2020 financing period. It outlines a policy framework for action aiming to raise the level of excellence and openness of clusters. Besides efforts to improve the framework conditions, specific policy steps aim at:

- establishing a high-level European Cluster Policy Group to explore ways on how to best assist EU countries in supporting clusters;
- expanding the policy dialogue under the European Cluster Alliance;
- fostering transnational cooperation between cluster organisations;
- promoting excellence of cluster organisations;
- developing the European Cluster Observatory into a full-fledged information service on clusters for enterprises and thereby improving the integration of innovative SMEs into clusters.

To improve the performance of cluster collaboration, a new Commission pilot action aims to upgrade the profile of 25 experts working in clusters, so that

they can act as 'multipliers' and train many other cluster managers to enable them to better support SMEs who want to trade globally. Some 30 cluster benchmarking evaluators will be trained and 80 clusters organisations are expected to be benchmarked against clusters that are performing elsewhere so they can all learn from each other and perform more effectively. These 80 cluster organisations will also sign up to the European Cluster Collaboration Platform (www.clustercollaboration.eu) which should help them obtain greater international exposure and ultimately new business and export opportunities for their SMEs. The pilot action involves 20 organisations in Greece, Ireland, Hungary and Turkey encompassing further partners from Bulgaria, the Czech Republic, Croatia, Iceland, Poland, Portugal, Romania, Serbia, Slovakia and Spain – seven countries are from the Danube Region.

European Cluster Alliance, ECA

ECE was founded in September 2006 by the partners involved in four cluster policy projects, known as INNO-Nets, funded under the PRO INNO Europe initiative of the EC, namely the BSR InnoNet, CEE-ClusterNetwork, CLUNET, and INNET. Since January 2008, it has been opened to a wide audience: any European cluster policy maker or cluster funding agencies willing to share experiences and to develop joint activities with the other partners of the Alliance could join the ECA. Since 2010 new members aim to promote and enhance the contribution of the Alliance to cluster policy dialogue and action at all levels, with the aim of improving the efficiency of existing efforts in order to facilitate the emergence of new competitive industries in Europe through clusters, as well as fostering international cluster cooperation amongst clusters for the benefit of their members (SMEs, research organisations etc.).

The main objectives of the European Cluster Alliance are:

- to share the experience gained so far in cluster policies by public authorities at national and regional level in order to fine-tune existing, or develop new and better cluster policies in the future;
- to go beyond the identification of good cluster policies and to facilitate a true policy dialogue between those who wish to jointly advance the European cluster agenda in areas of common interest;

- to become the single place at EU level for elaborating and exchanging new ideas and practical tools, new funding initiatives for improving cluster policies in Europe and for fostering European cooperation at policy level;
- to raise the level of excellence and efficiency of cluster policies in Europe which will result in the creation of more competitive world-class clusters in Europe, as proposed by the Commission Communication on clusters.

ECA is not all-embracing, but one of the voluntary networks. It principally targets three types of cluster actors: (i) national and regional ministries and agencies that are involved in the design and/or management of innovation and cluster funding support programmes and actions; (ii) trans-national networks between clusters (meta-clusters); (iii) international/national cluster associations. ECA members from the Danube Region include mainly (i) type of government agencies and some cluster associations in Austria, Croatia, Czech Republic, Germany, Hungary, Serbia and Slovakia. (http://www.eca-tactics.eu/)

European Cluster Observatory

The online platform provides a single access point to information and analysis of clusters and cluster policy in Europe. Launched in 2007, the observatory offers a range of services providing data and analysis on clusters and competitiveness, a cluster library, and a classroom for cluster education. The European Cluster Observatory also produces analysis and reports on regional competitiveness conditions, transnational cluster networks, clusters in emerging industries and studies on better practices in cluster organisations. (www.clusterobsevatory.eu)

European Cluster Collaboration Platform

This platform provides online quality information and networking support for clusters (organisations and members) aiming to improve their performance and increase their competitiveness through the stimulation of trans-national and international cooperation. (www.clustercollaboration.eu)

European Secretariat for Cluster Analysis (ESCA)

ESCA was established by one of the leading German innovation agencies VDI/VDE Innovation + Technik GmbH to offer practical advice to cluster management organisations. ESCA promotes cluster management excellence through benchmarking and quality labelling of clusters and cluster management organisations. ESCA has been mandated by the European Cluster Excellence Initiative (ECEI) to organise the assessment process in the context of the "Cluster Organisation Management Excellence Label GOLD". ESCA also supports cluster policy makers and programme owners with advice on cluster programme development. Until mid-2013, 18 cluster organisations from different European countries have successfully participated in the Gold label assessment: 2 in Austria, 4 in South Germany, non in other Danube Region countries. Bronze Label of the European Cluster Excellence Initiative (ECEI) was achieved by 171 clusters in the Danube Region: Austria 14, Croatia 14, Czech Republic 13, Germany 105, Hungary 13, Romania 5, Serbia 4, Slovakia 7. This is voluntary, but all clusters having a management can apply. (There is no silver level yet.) http://www.cluster-analysis.org/

European Strategic Cluster Partnership Initiative

This is an initiative of the Unit “Clusters and Support for SMEs” in the Directorate General for Enterprise and Industry of the EC which calls for the cooperation of cluster organisations with the aim to enter extra-European markets. A launch event of the European Strategic Cluster Partnerships was organised by the European Cluster Collaboration Platform on 16 May 2013 in Linz in the framework of the 2013 Cluster Academy programme of Clusterland Upper Austria. Cluster organisations from across Europe were invited to form such partnerships through a call for the expression of interest that was published on the European Cluster Collaboration Platform (ECCP) in March 2013. (http://www.clustercollaboration.eu)

6.3 Competitiveness initiatives to implement the EUSDR

One of the main objectives of the EU Strategy for the Danube Region is to identify, support and promote projects in the countries of the Danube Region which are of relevance for the implementation of the targets set in the Action Plan for the Priority Area 8th. Projects are to be developed by cluster and business organisation. The Priority Area Coordinators together with the Steer-

ing Group established seven thematic Working Groups (WGs). Two of the working groups initiate the cooperation of clusters and of business networks. The WG Cluster of Excellence aims "To foster cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of competence in the Danube Region." The WG Cooperation of Business Organisations aims "To improve business support to strengthen the capacities of SMEs for cooperation and trade".

The discussion of cluster cooperation and business networks in the Danube Region cannot be restricted to the activity in the framework of the two working groups because international cooperation involving the countries of the region has longer history and a broader scope. European initiatives and multi-country initiatives involving EU members and other countries have developed institutions and networks, the members of which are also part of the Danube Region cooperation. It is not clear yet, how far the Danube Region cooperation networks will replace earlier initiatives or will function side by side to them.

7.3.1 Business cooperation networks

The cooperation of business organisations link relevant business support and trade agencies in the Danube Region to develop economic services, trade and commercial cooperation. Relevant business organisations include e.g. Chambers of Commerce and Industry, Federations of Entrepreneurs and Industrialists, Investment and Trade Agencies, associations of entrepreneurs. While clusters are partnerships between various economic, public and NGO actors, the chambers represent the interest of its members in policy dialogues. Clusters aim at utilising synergies in a given economic policy environment, while chambers try to influence economic policy to be more pro-business. Chambers can at the same time be catalysts and partners in cluster building. At the EU level EUROCHAMBRES is the association of national chambers of commerce. There are no special EU programmes in this area of business cooperation.

In the *PA8 there is an Actions Plan* which is aimed “to improve business support to strengthen the capacities of SMEs for cooperation and trade”. Its main aims include:

- Set up a network among business organisations in the region,

- Create a framework of business organisations to exchange experiences and best practices as well as to support capacities of SMEs,
- Create a single platform to establish common projects e.g.:
    - "To hold annual business forums bringing together Danube Region businesses, governments, regional organisations and academia" – the goal is to strengthen cooperation and business opportunities for SMEs with private sector, public sector as well as academia to stimulate growth and competitiveness
    - "To strengthen Danube Region entrepreneurs and SMEs" – the goal is to identifies innovative approaches to knowledge transfer from academia to SMEs and businesses.

The main target areas and sectors to improve business support for SMEs:

- Information technology – IT sector,
- Automotive industry,
- Electro industry,
- Renewable energy and green energy,
- Innovation for SMEs, services and industry.

The action plan will be implemented through the cooperation of business organisations in the Danube Region. The Danube Chambers of Commerce Association (DCCA) is up to now the only cooperation organisation of chambers which excludes country level chambers. The national chambers in the Danube Region have no specific organisation of their own. The WG Cooperation of Business Organisations in PA8 has been formed by the most active members of the DCCA with the aim to implement specific projects during the 2014-2020 financing period.

Danube Chambers of Commerce Association (DCCA) www.danubechambers.eu

The association of 20 regional and municipal chambers of commerce along the river Danube is the main cross-border organisation of such institutions in the Danube Region. It was established in June 2010 and the driving force is the

Budapest Chamber of commerce whose president is also the current president of the DCCA. The organisation is not all embracing but has a wider coverage than DanuClus. The members are in towns on or close to the river Danube. There is no member from the more remote provinces of the Danube Region countries. It does not cover all organisations in the region and also excludes Moldova and Ukraine.

The DCCA was the driving force to create a new PA8 Working Group, called Business Organisations, was started on 28 October 2013 (Business organisations http://groupspaces.com/Competitiveness/announcements/). The WG includes members from Ulm Chamber of Commerce and Industry, Germany, Varazdin Chamber of Economy, Croatia; Serbian Chamber of Commerce and Industry, Serbia; Ruse Chamber of Commerce and Industry, Vratsa Chamber of Commerce and Industry, Enterprise Europe Network-Bulgarian Business Support Center, Ruse, Bulgaria; Bulgarian-Romanian Chamber of Commerce; Budapest Chamber of Commerce and Industry, Hungary as well as Vienna Chamber of Economy and Belgrade Chamber of Commerce and Industry are our members. The WG decided to drawn up the framework of institutional cooperation and suggested some future project proposals in the different areas of fields of businesses.

The WG decided future project proposals included:

- Innovation for SMEs

The Vienna Chamber of Economy as well as Enterprise Europe Network-Bulgarian Business Support Center and experts from Varazdin have drawn up a project proposal which is focusing innovation for SMEs, services and industry.

- New Banking and Financial Instrument for companies and SMEs

Enterprise Europe Network-Bulgarian Business Support Center proposed new instruments for SMEs serving to boost the liquidity of Danube Region micro, small and medium size enterprises.

- Support for SMEs in the delivery of the automotive industry – Supplier Development Programme

The Budapest Chamber of Commerce and Industry and Ruse Chamber of Commerce and Industry proposed a Supplier Development Programme, which is focusing on support for SMEs in the automotive supplier sector.

- Mix Start-Up Pilot Project for competitiveness between Bulgaria and Romania

Bulgarian-Romanian Chamber of Commerce indicated a pilot project, which is focusing on competitiveness of Bulgarian and Romanian start-up companies in the first step.

In the next coming months road maps are to be set up for these proposals. The members and experts came to the meeting from different national chambers and agencies.

Danube Business Advisory Council (DBAC)

DBAC is an independent network organisation whose members are promoting or providing high quality innovation support and technology transfer services to firms, with the ultimate aim to develop the knowledge economy and boost the wealth creation process. The network involves decision makers from all over the Danube Region and beyond to establish production networks of companies/research/universities to stay at the cutting-edge of technology, further interaction between different disciplines, sub-sectors, economic fields. A more intensive, systematic and wide-range collaboration between economy, academia and scientific institutions is promoted, as well as public-private initiatives to support the development of Danube Business and Technology platforms. Being in charge to develop and implement the European research and innovation policy, the EC Directorate-General for Research and Innovation ensures the policy coordination of the DBAC's strategy with a view to achieving the goals of Europe 2020 and the Innovation Union. www.danubeinnovationunion.com

Council of Danube Cities and Regions (CODCR)

Launched in Ulm by the "Deklaration der Donaustädte" on 4 July 1998, the CODCR is a major inter-municipal and interregional network, to become an example of cross-border cooperation in the Danube Region. With its political Head Office in Ulm and operational Headquarters and General Secretariat in

Bucharest, the Council of Danube Cities and Regions is a bridge that links European, regional and local institutions to the academic, business, financing networks and other representatives of the civil society. http://www.codcr.com

Danube Competence Centre (DCC)

The Danube Competence Centre (DCC) is a regional network of public, private and non-government organisations involved in tourism sector development along the Danube. DCC was founded in early 2010 as the initiative of 22 organisations and is supported by the German Ministry of Economic Cooperation and Development through its agency GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). It involves 60 members from 9 Danube countries, its mission being strengthening visibility of the Danube Region and enhancing and promoting cross-border cooperation and sustainable tourism development. Countries from the Danube area involved are: Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova and Ukraine. http://www.danubecc.org/

Danube Alliance

Danube Alliance defines itself as an informal, demand-driven and results-oriented forum for regional cooperation in the Danube macro region that identifies political goals, creates action plans, initiates projects and serves as a platform for the exchange of ideas concerning regional issues of common interest. It is an open network for cooperation with stakeholders. Members are various government ministries and agencies from the 14 countries involved in the EUSDR, the EC, numerous intergovernmental and non-governmental organisations, academic and financial institutions, as well as local, city and sector networks. It brings together people who are active in a variety of different sectors: transport, energy, tourism and culture, environment, biodiversity, quality of waters, research, education and ICT, competitiveness, institutional capacity and cooperation, security. A Danube Alliance Strategy is currently under development together with a Danube Alliance Portfolio of Actions and Flagship Projects. http://www.eudanube.com

Arge Donauländer

Created in 1990, the Arge Donauländer aims at promoting co-operation among its members for the development of the Danube area to serve the interests of its inhabitants and to foster peaceful cooperation in Europe. Location of the Secretariat: St Pölten, Land Lower Austria, AT.

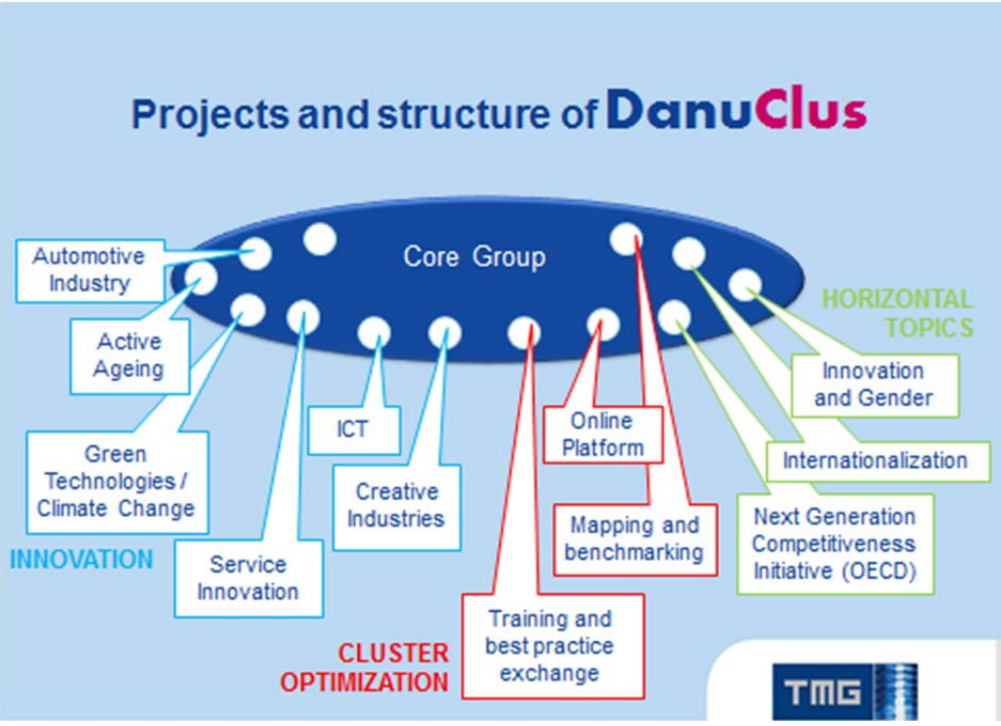
Steinbeis Danube Center

This is a non-profit institution for fostering the implementation of Danube Strategy. It acts as the integrative link for all stakeholders of Danube Region. The Center is directly involved in activities of several Steering Groups (PA 7, 8, 9). Its work is based on 17 years of experience in economic promotion and regional development in Middle and Eastern Europe.

7.3.2 Cluster organisation networks

DanuClus (Danube Cluster Networks)

The PA8 Working Group “Clusters of Excellence” provides the framework for cluster cooperation in the EUSDR. TGM Upper Austria (Oberösterreichische Technologie- und Marketinggesellschaft n.b.H.) takes a coordinative role in this area. At the conference "Boosting Innovation Policies with Clusters along the Danube" held on 27-28 June 2013 in Linz Austria, three initiators (Upper Austria, EC, Baden-Wuerttemberg) officially launched the cooperation initiative DanuClus (Danube Cluster Networks). DanuClus aims to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020. The stakeholders collect and develop project ideas for clusters and support their implementation with their expertise. (http://groupspaces.com/Competitiveness). A Memorandum of Understanding on deeper cooperation of cluster organisations was signed by the Associations of 6 countries (CZ, SK, RO, BG, RS, HR) in 2013; three other countries are interested to join the network (HU, DE, AT).



Source: TGM Upper Austria.

Danubiz

The company "local global GmbH" in Stuttgart has developed the concept of Danubiz to promote sustainable business development in the Danube Region. It works towards fostering competitiveness in an effort to deliver improvement in the business performance of small and medium enterprises. They envision Danubiz as an expanding entity that comes as a natural response to the current informational and economic impediments that are holding SMEs back from expanding outside their national environment towards international markets. (danubiz.eu)

Danube-INCO.NET

Danube-INCO.NET is a FP7 funded coordination and support action for the official EUSDR in the field of research and innovation. It focuses on PA 7 "Knowledge Society" and PA 8 "Competitiveness". Within these two priority areas the project picks up pressing social and entrepreneurial challenges, such as weak economic ties related to research and innovation (R&I) cooperation between Danube Regions, the brain drain as such and the loss of human capi-

tal or the lack of innovative approaches to social problems. The project has 19 project partners from 14 countries and last for three years starting 2014. The project leader is the Centre for Social Innovation and the partners are coming from very different institutional backgrounds and provide a broad field of expertise, such as universities, research centres, ministries and companies. (www.danube-inco.net scheduled launch in April 2014).

6.4 Summary and Conclusions

This chapter provides an overview of the existing organisations and networks related to economic cooperation in the Danube Region based on which conclusions on the present stage of institutional cooperation can be formulated.

- Political cooperation initiatives in the region contribute to peace and stability. They also support economic initiatives to raise competitiveness by cooperation based on common interest. Especially the activity of the Visegrad Group can provide useful experience. Having started as a platform for political dialogue, V4 is now active in encouraging economic cooperation, the coordination of energy policies and supports research.
- The new transnational ETC programme DANUBE 2014-2020 set up for the DR provides an operational programme as another instrument to implement the goals of the EUSDR. Besides contributing to the Strategy's thematic goals by realizing relevant cooperation projects, the programme might also support the institutional cooperation of stakeholders and institutions of the Danube Strategy.
- Countries in the DR have different status in relations to the EU; there are EU members, potential members and Eastern neighbourhood countries. These are included in different kinds of EU programmes and have access to different funds from the EU and from multinational financing institutions.
- Business organizations and cluster networks set up with the goal to foster cooperation in the Danube Region are in their inception while there is a long tradition to cooperate in the framework of EU programmes and the Southeast European cooperation process.

- The targets of cooperation to increase economic competitiveness in the EUSDR are set in the Action Plan for the Priority Area 8. Projects are to be developed by cluster and business organisation. The Priority Area Coordinators together with the Steering Group established seven thematic Working Groups (WGs). Specific working groups have initiated the cooperation of clusters and of business networks. Cluster organisations are first of all active to improve the capacities of clusters and their international networking. Among the business organizations the chambers of commerce and industry support start-up businesses, develop cross-border cooperation of businesses facilitate trade.
- The WG Cluster of Excellence aims "to foster cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of competence in the Danube Region." In the field of cluster cooperation TGM Upper Austria is the main initiator. DanuClus aims to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020.
- The Danube Chambers of Commerce Association DCCA has been the driving force to create the PA8 Working Group “Business Organisations”. This aims "to improve business support to strengthen the capacities of SMEs for cooperation and trade". DCCA is an association of 20 regional and municipal chambers of commerce along the river Danube. There is no member from the more remote provinces of the Danube Region countries. In each areas of cooperation potential for further development exists all along the Danube based on already existing structures.
- The participation in cooperation initiatives is very uneven in the Danube Region. German, Austrian and Hungarian organisations are the most active, those from Croatia, Serbia, Romania and Bulgaria are less so while other countries hardly show up. This has to do with unevenness concerning cooperation culture, financing opportunities and public governance.

6.5 Recommendations

The analysis of the current cooperation networks and a small questionnaire survey resulted in the following recommendations:

- *Recommendation 1:* More transparency has been required by cluster and business organizations interviewed by wiiw. Clarification is needed as to the role of various initiatives and programmes in the framework of the EUSDR in relation to other initiatives and programmes of the EC, Southeast Europe and the Neighbourhood. Financing opportunities for EUSDR activities must be clear for all (potential) participants in cooperation projects. These must be also available and attractive for organizations in non-EU members. Also the information about existing cooperation initiatives need better visibility.
- *Recommendation 2:* The inclusion of less developed regions is required. Organisations from less developed regions of South-East Europe and especially from Moldova and Ukraine need to be invited and integrated into the cooperation process of the EUSDR. These have poorer organizational and financial capacities than organizations in more developed countries. There seem to be two ways ahead: (1) to enlarge existing networks and initiatives to the less developed regions; (2) to support initiatives in less developed regions to set up networks where they have leading position.

  Following the first rout has potential albeit it may become a management problem if networks grow too large. The problem has been raised already that information and knowledge flow between PAs, WPs, project coordinators and (potential) interested organizations need to improve.

  The second rout may need some kick-off effort in the form of a special programme. A strong motivation must be created as cooperative attitudes in business are by and large absent in many countries. A special coaching project may also help to establish self-organizing initiatives.

- *Recommendation 3*: Cooperation should be also more professional and deeper in order to foster the development of world-class clusters in line with the EU innovation strategy. A cross-sectoral approach for cluster projects is the new trend to foster innovation, which also allows for a transfer of knowledge to more traditional industries and for developing a smart specialisation strategy that goes beyond national borders. Clustering is needed in service innovation, creative industries and social innovation. In order to the quality of the cooperation, EUSDR cluster-organization labelling can be developed with minimum quality requirements going beyond simple benchmarking of cluster management skills.

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8 Annex

The Mannheim Firm Panel (MUP)

The **Mannheim Enterprise Panel (MUP)** of the Centre for European Economic Research (ZEW) is probably the most extensive micro database on firms in Germany. Since its establishment, ZEW cooperates with Creditreform (Verband der Vereine Creditreform), the largest credit rating agency in Germany. Twice a year Creditreform gives a complete copy of its extensive data base covering economic information on companies located in Germany – including closed businesses – for scientific purposes to ZEW. The series of individual cross-sectional data form the basis for the MUP, which is created and maintained at ZEW. The storage of the individual cross-sections as panel dataset enables ZEW to also perform longitudinal analyses.

The MUP represents the total population of companies in Germany – including micro-enterprises and self-employed freelancers. The statistical unit of the MUP is the legally independent company. Creditreform records all companies in Germany which are enlisted in a publicly accessible register like the Commercial Register or are "sufficiently" economically active meaning that owners/founders generally run their businesses in fulltime. Sideline businesses are underreported as they are not the aim of Creditreform's survey routines.

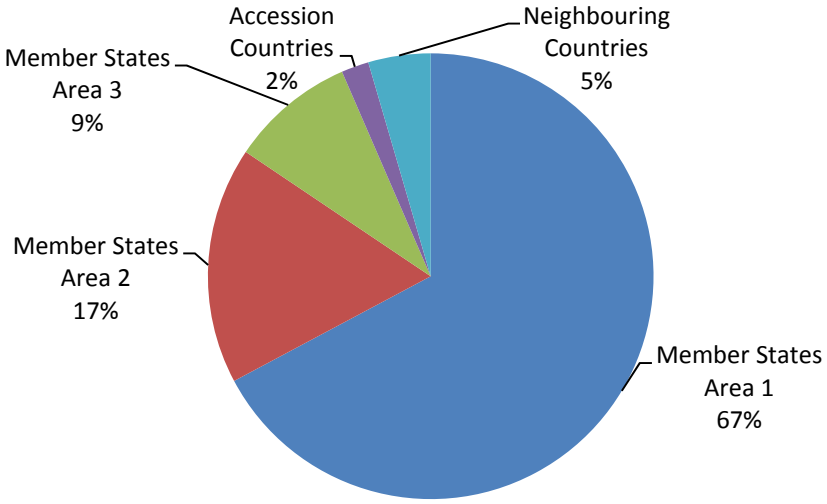
The information contained in the MUP forms the basis for sampling of enterprise surveys and extrapolation forecasts of data collected in sectors in which the official statistics fail to provide information on the total population of businesses. The MUP is designed to retrace the dynamics of job creation within companies and to analyse start-ups and market exits.

Table 18: Population and population growth rates in the Danube Region and its subgroups

Population			
	2003	2011	Growth 2003-2012 (in %)
Danube	156,316,884	153,664,049	-1.7
Member States Area 1	31,183,423	31,745,635	1.8
Member States Area 2	27,712,254	27,919,042	0.8
Member States Area 3	34,005,570	33,013,760	-2.9
Accession Countries	11,989,818	11,718,711	-2.3
Neighbouring Countries	51,425,819	49,266,901	-4.2

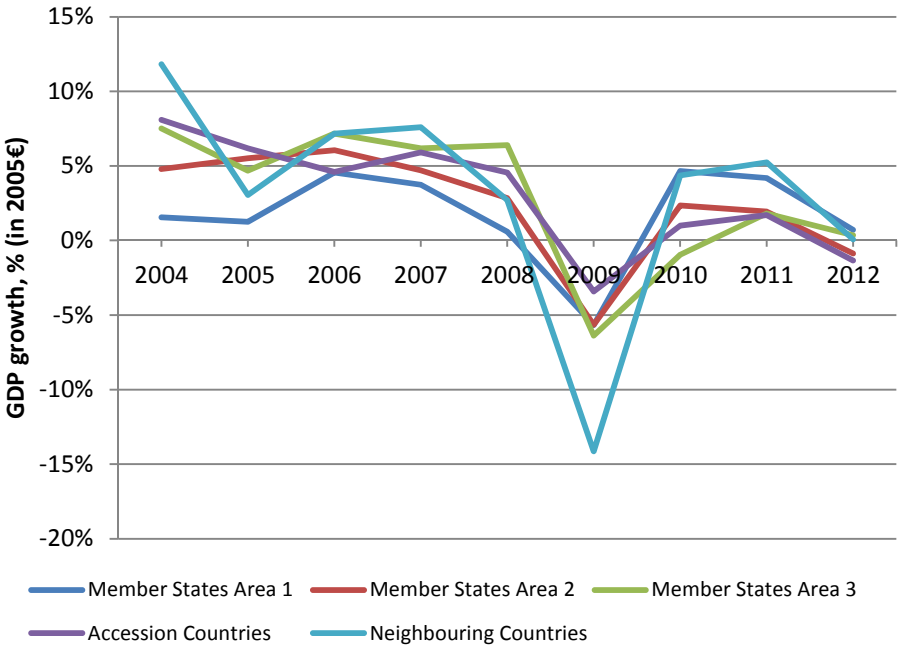
Source: World Bank, Genesis Online Datenbank. Calculation and illustration: IAW.

Figure 124: Share of GDP of the subregions of the Danube Region in total GDP of the Danube Region in 2003 (in %)



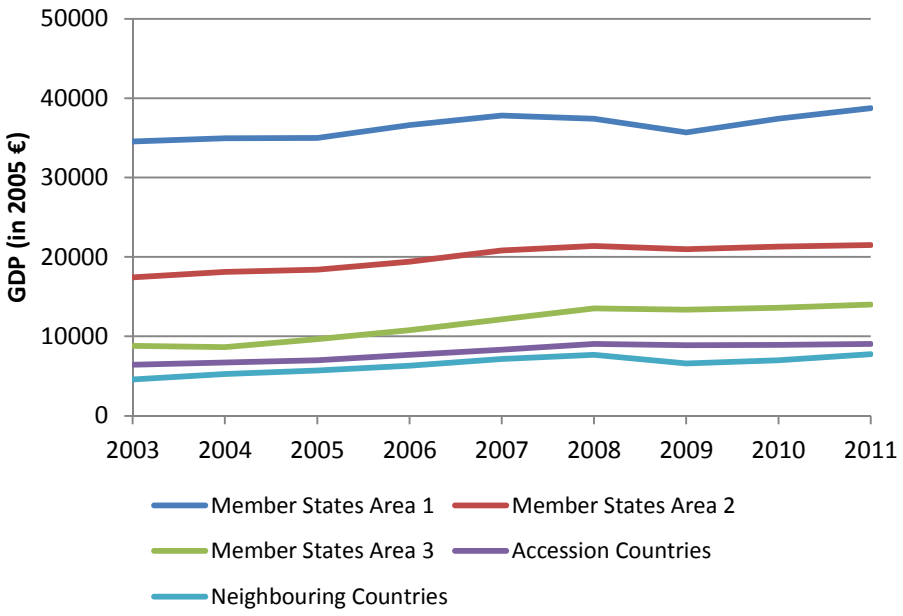
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 125: Yearly real GDP growth 2004-2012, by subregions of the Danube Region (in %)



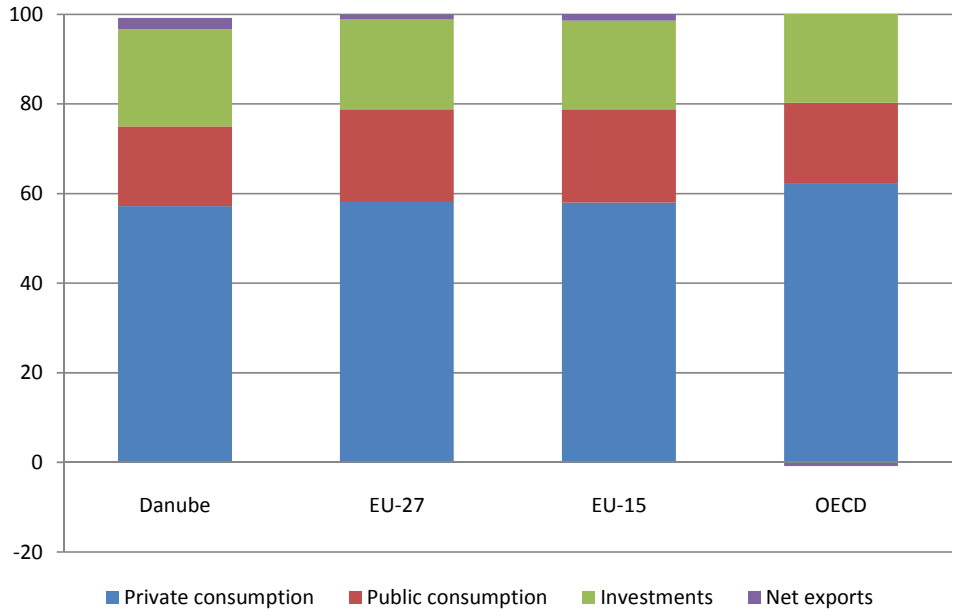
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 126: GDP per capita, PPP adjusted



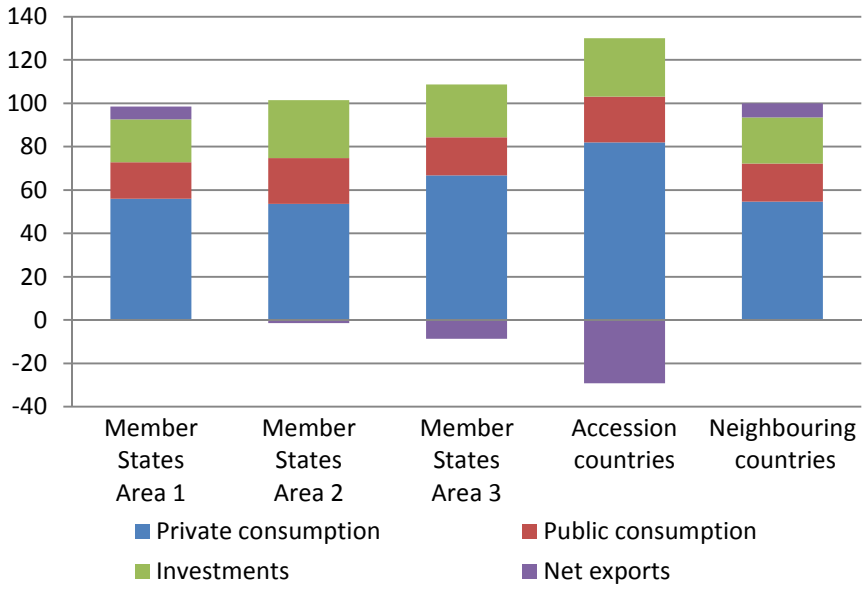
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: OECD, Penn World Tables, World Bank, GENESIS online Datenbank. Calculation and illustration: IAW.

Figure 127: GDP components in 2004 (in %)



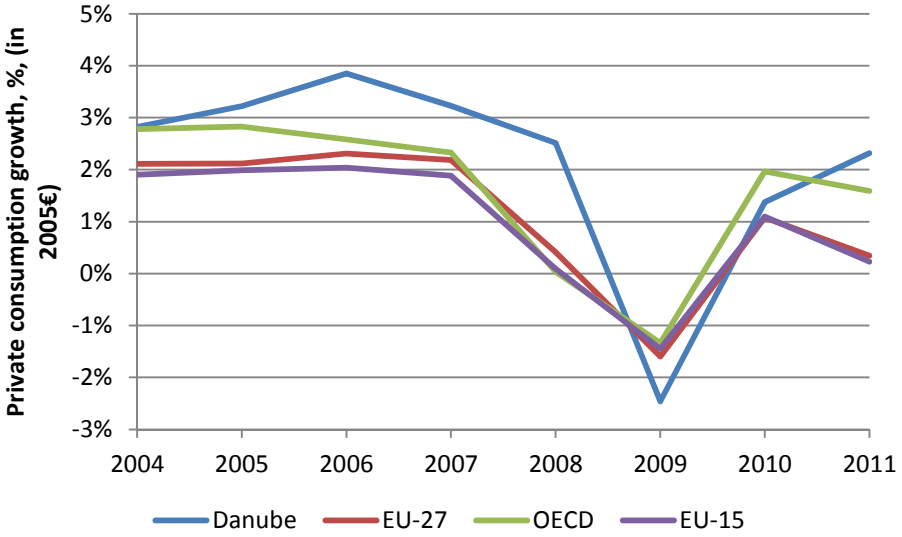
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. The shares of the GDP components in the Danube Region do not amount to 100 % because at the regional (Bundesland) level in Germany - and therefore, for Bavaria and Baden-Wuerttemberg – there is a "residual GDP component" that does not solely consists of the net exports. Calculation and illustration: IAW.

Figure 128: GDP components in 2004, by subregions of the Danube Region (in %)



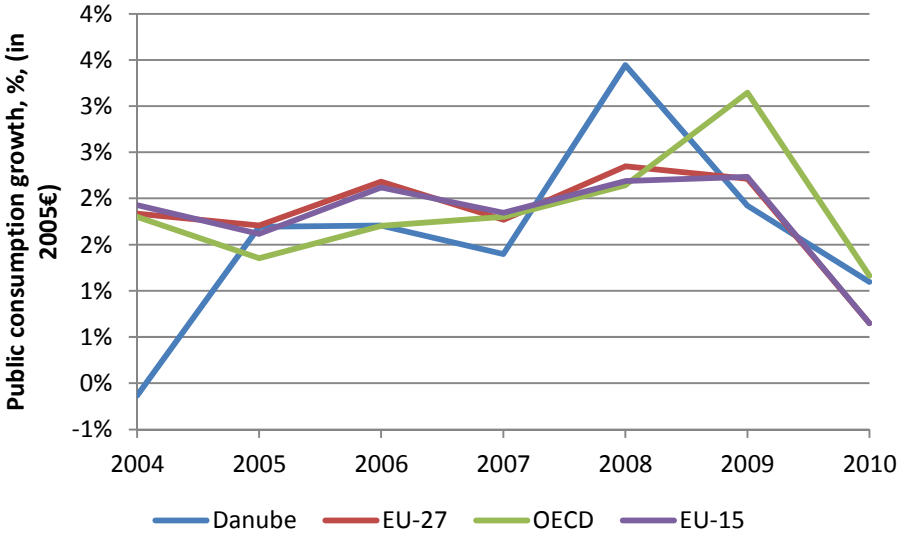
Notes: Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW. 2003: First year with complete data availability. For Member States Area 1, 100% is not reached because for Bavaria and Baden-Wuerttemberg proxies have been used for net exports.

Figure 129: Real private consumption growth



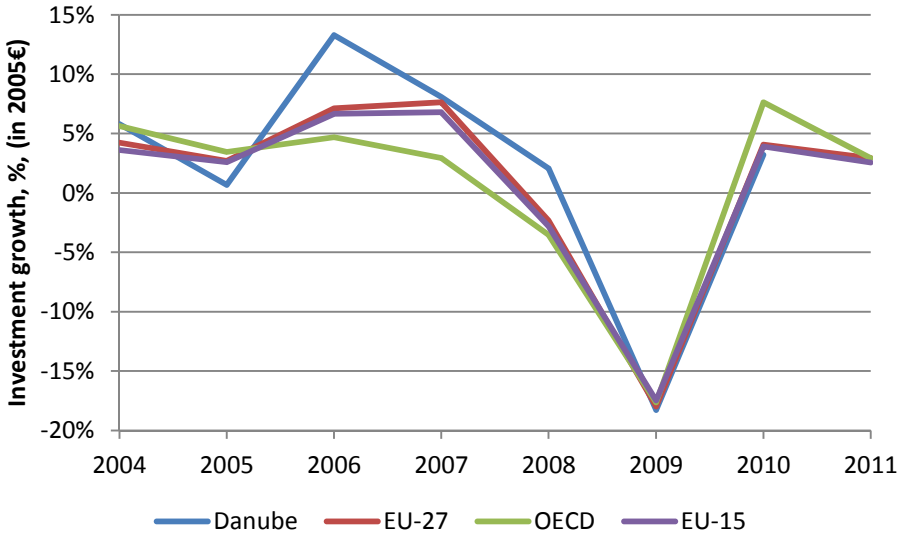
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 130: Real public consumption growth



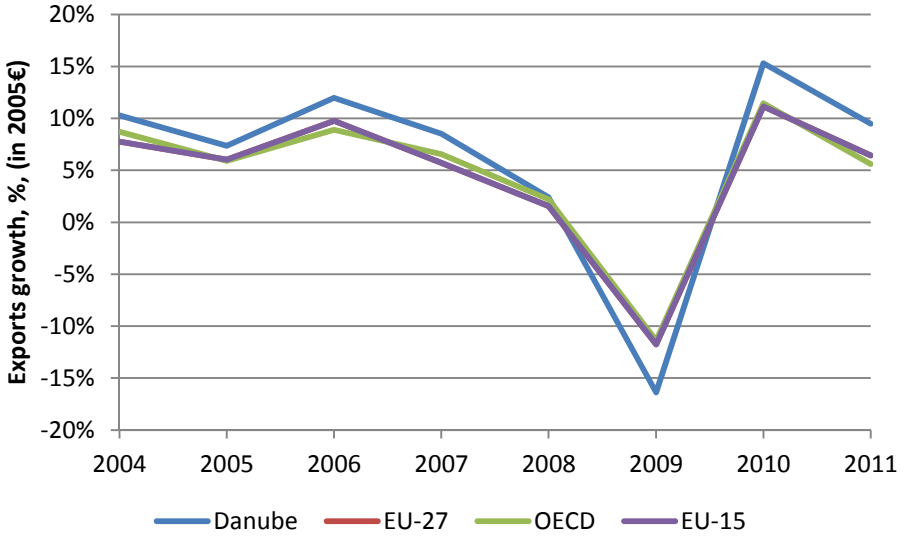
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 131: Real investment growth



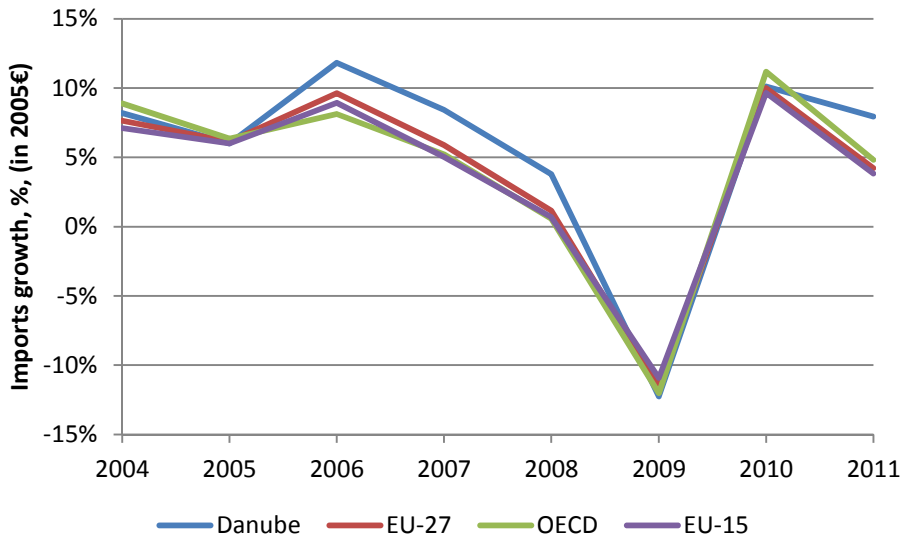
Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 132: Real export growth



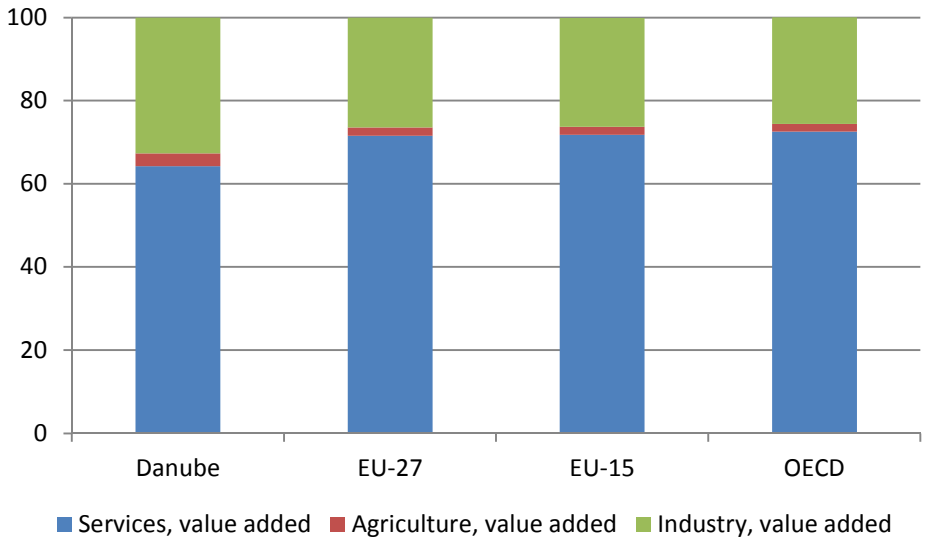
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg. Calculation and illustration: IAW.

Figure 133: Real import growth



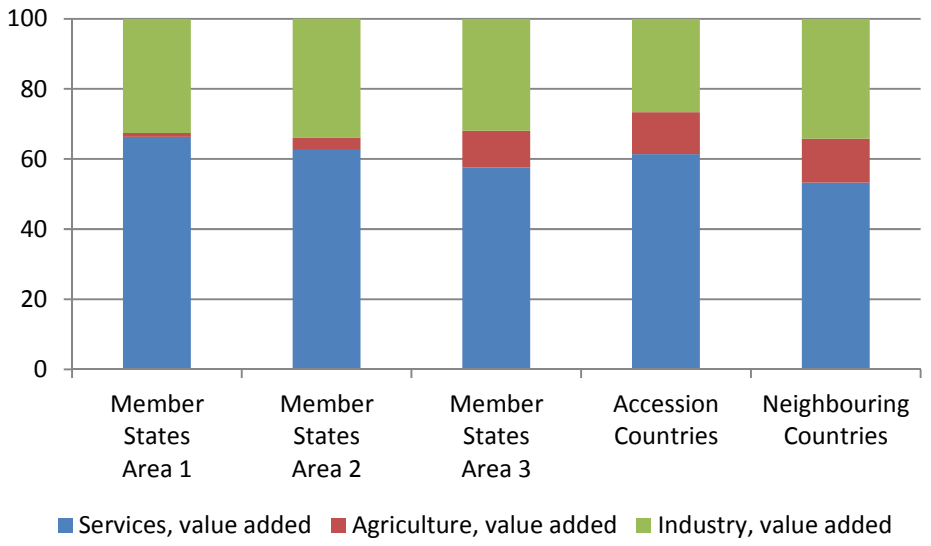
Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Wuerttemberg. Calculation and illustration: IAW.

Figure 134: Contribution of sectors to GDP in 2003 (in %)



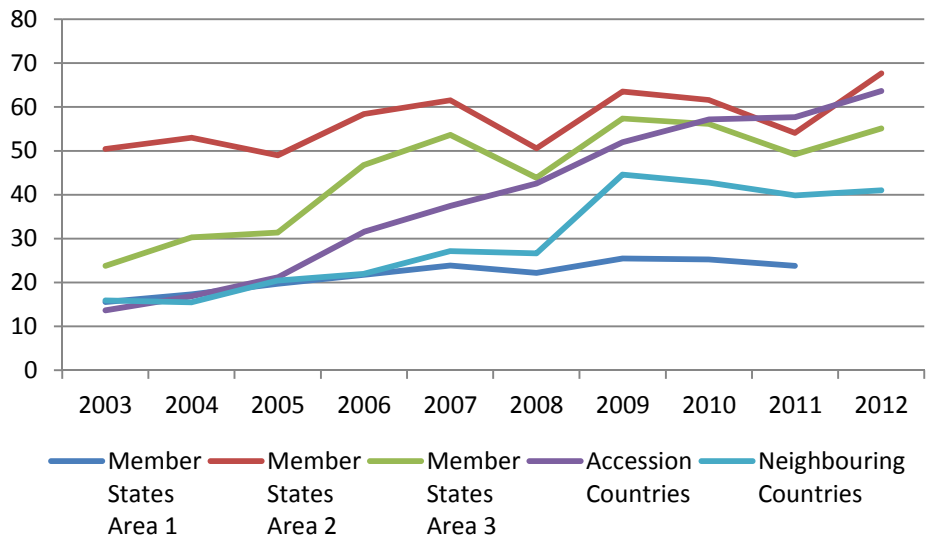
Source: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW.

Figure 135: GDP sectors in 2003, by subregions of the Danube Region in (%)



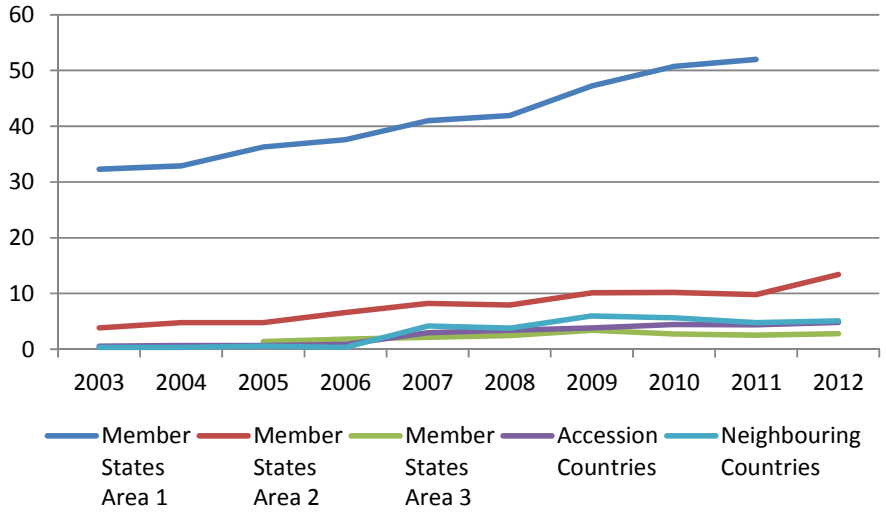
Source: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW

Figure 136: FDI stock inwards 2003-2012, by subregions of the Danube Region (in % of GDP)



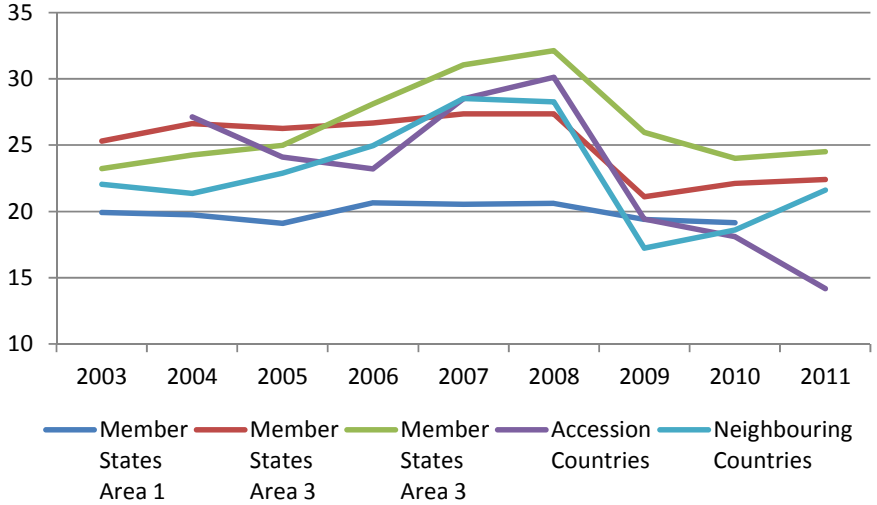
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: UNCTAD. For Bavaria and Baden-Wuerttemberg: Deutsche Bundesbank. Calculation and illustration: IAW

Figure 137: FDI stock outwards 2003-2012, by subregions of the Danube Region (in % of GDP)



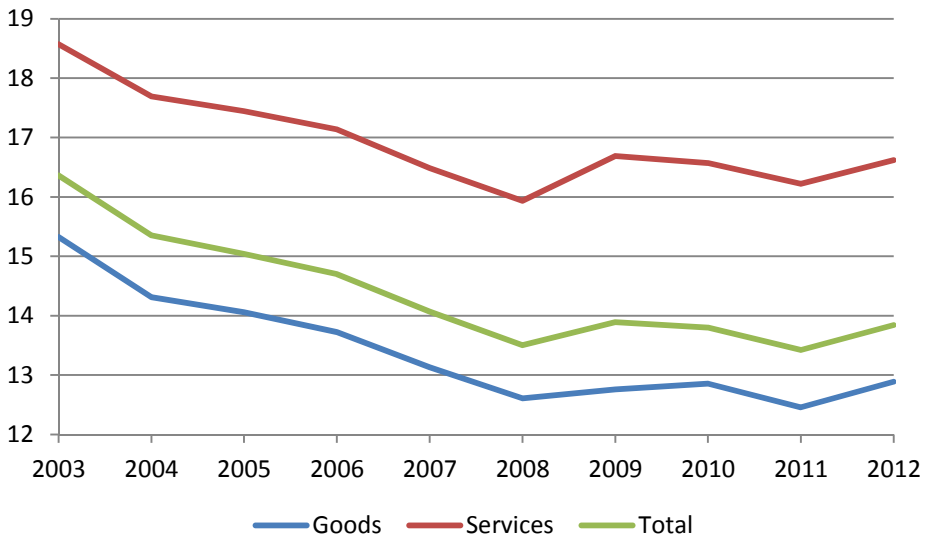
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: UNCTAD. For Bavaria and Baden-Wuerttemberg: Deutsche Bundesbank. Calculation and illustration: IAW

Figure 138: Domestic Investment 2003-2011, by subregions of the Danube Region (in % of GDP)



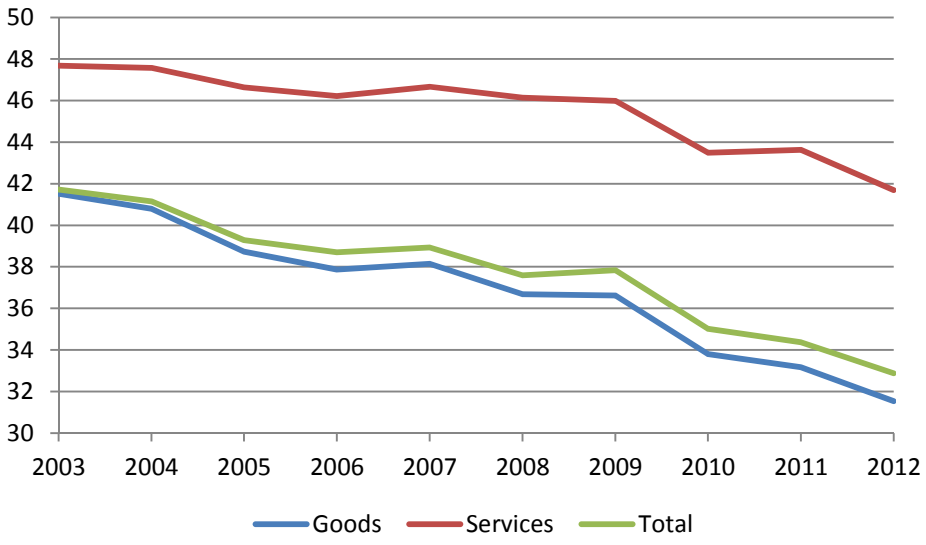
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: Eurostat, Worldbank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW

Figure 139: NAFTA World export shares 2003-2012 (in % of world exports)



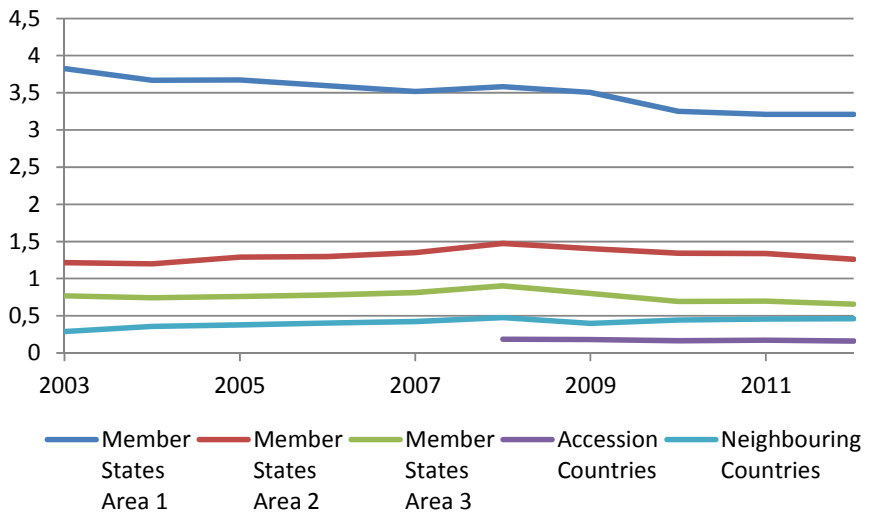
Note: NAFTA data used here because OECD data are not available.
Source: UNCTAD. Calculation and illustration: IAW.

Figure 140: EU-27 World export shares 2003-2012 (in % of world exports)



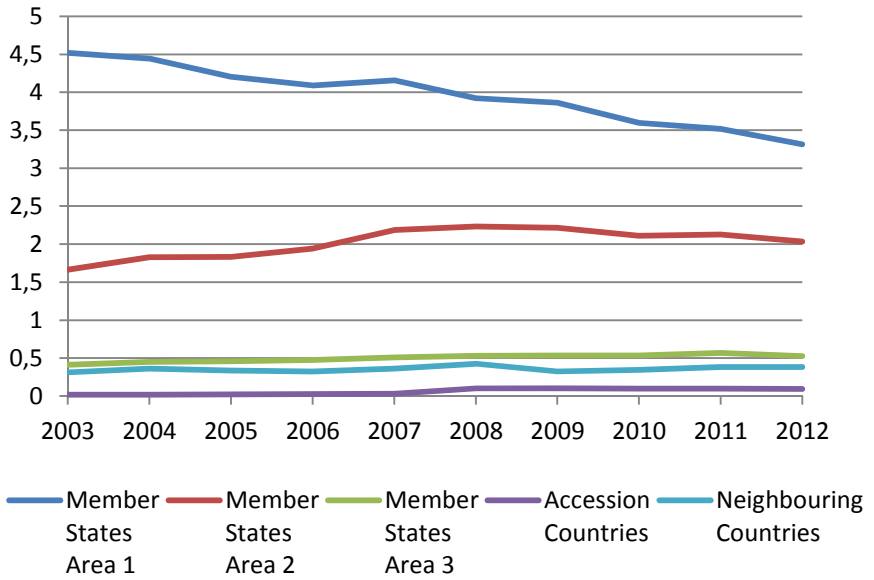
Source: UNCTAD. Calculation and illustration: IAW.

Figure 141: Danube Region World export shares 2003-2012 (in % of world service exports)



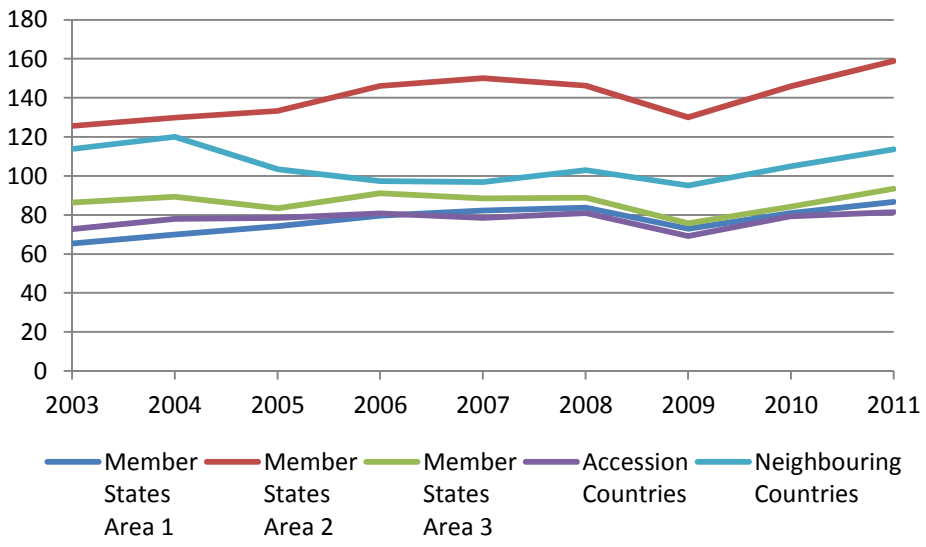
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: UNCTAD. Calculation and illustration: IAW.

Figure 142: Danube Region World export shares 2003-2012 (in % of world goods exports)



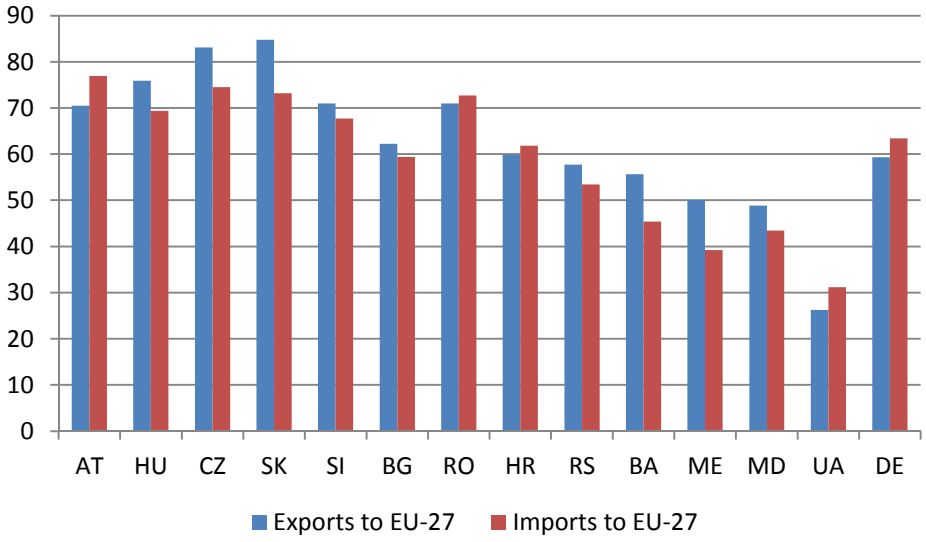
Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Source: UNCTAD. Calculation and illustration: IAW.

Figure 143: Trade intensity, by subregions of the Danube Region (in % of GDP)



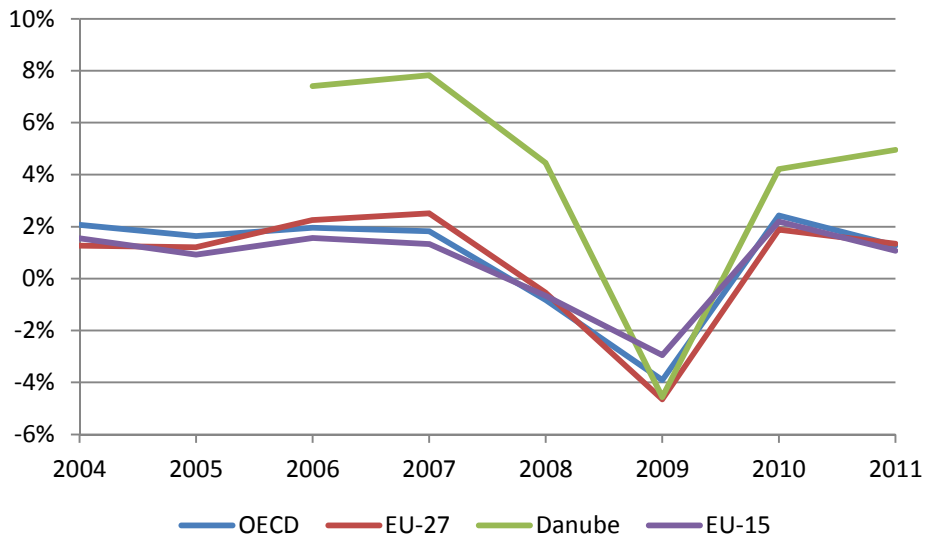
Source: UNCTAD. Calculation and illustration: IAW. Trade Intensity is defined as Exports + Imports , divided by GDP.

Figure 144: Share of imports and export with EU-27 (in % of total imports and exports)



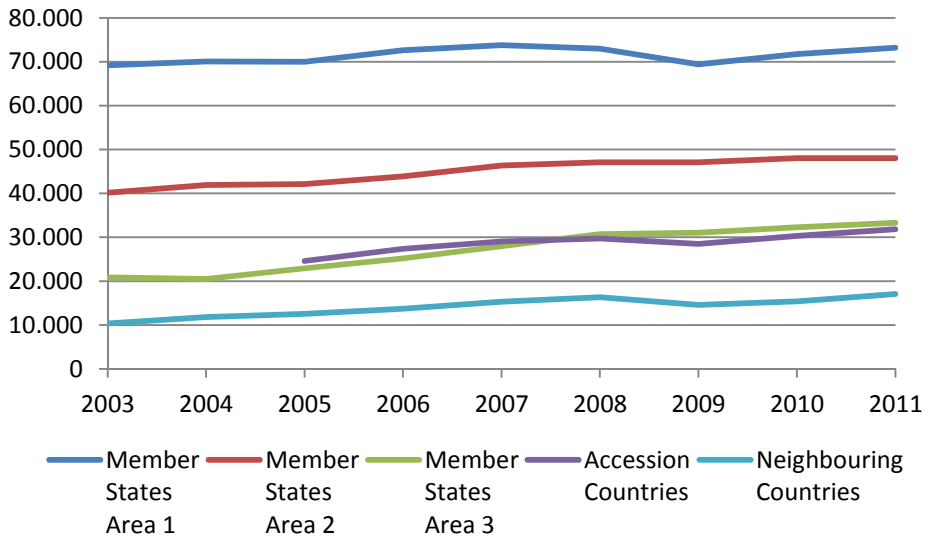
Source: Eurostat, illustration: IAW

Figure 145: Real Labour productivity growth (in GDP per person employed)



Source: Penn World Tables, OECD, Arbeitskreis VGL. Calculation and illustration: IAW.

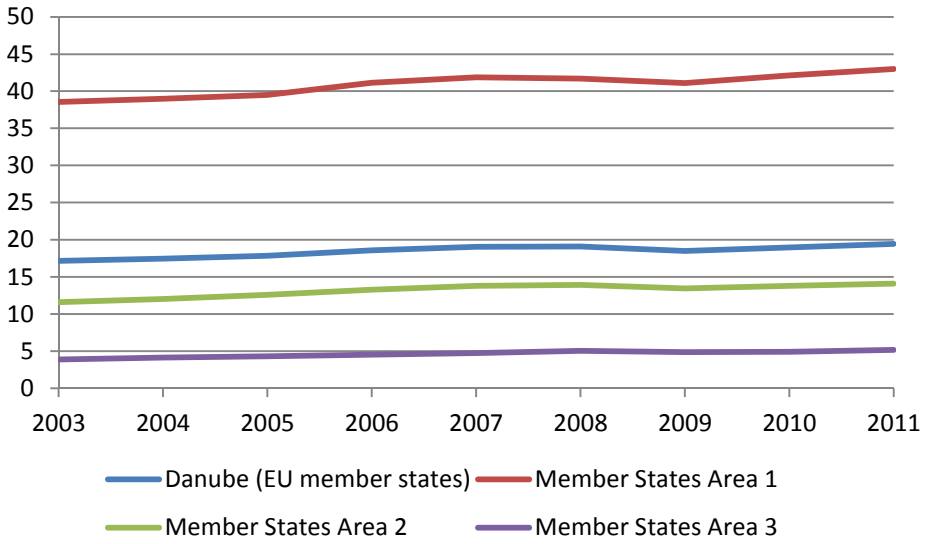
Figure 146: Labour productivity 2003-2011, by subregions of the Danube Region (GDP per person employed, in Million 2005 US$)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.

Source: Penn World Tables, OECD, Arbeitskreis VGL. Calculation and illustration: IAW. Data for BW and BY for 2010 and 2011 is not yet available. Data for Montenegro for 2003 and 2004 is not available.

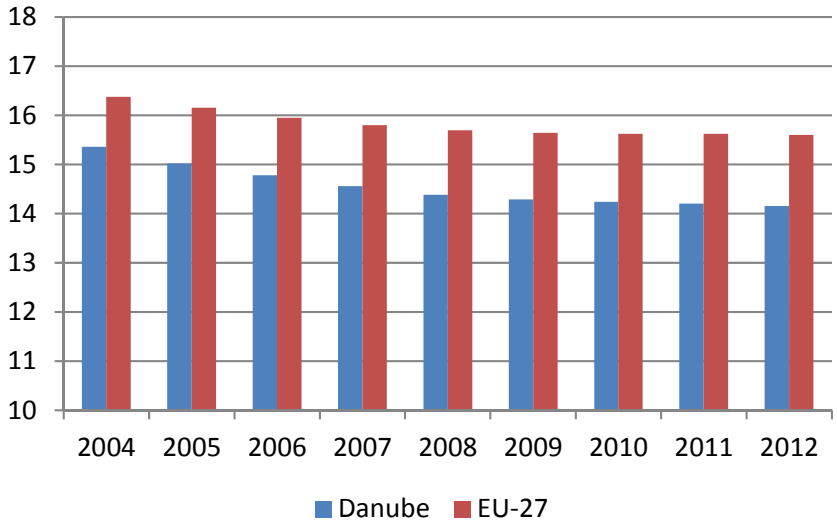
Figure 147: Labour productivity 2003-2011, by subregions of the Danube Region (only EU member states, GDP per person employed, in € per hour worked)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO. Data only available for EU member states. HR is not included in Member States Area 3 because there is also no data available.

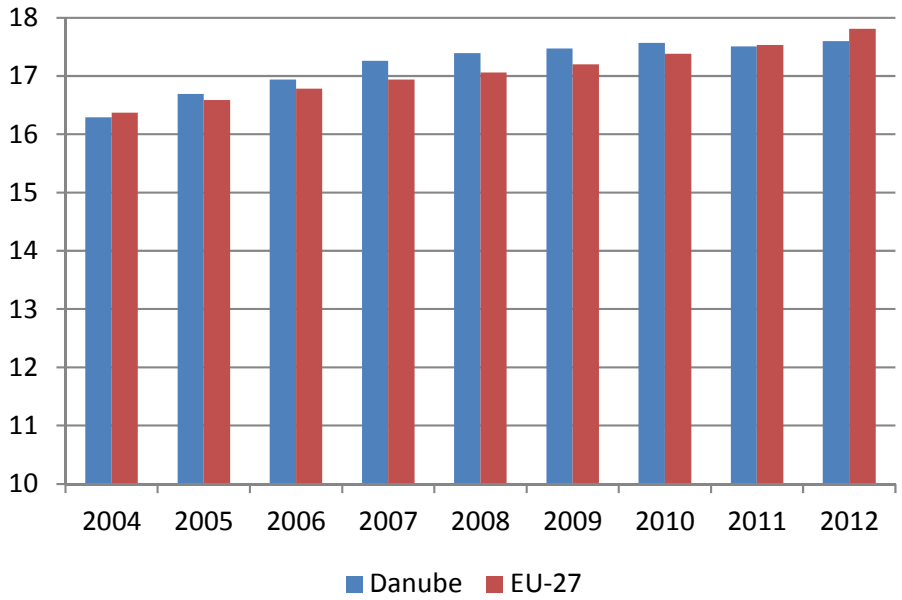
Source: Eurostat, Arbeitskreis VGR. Calculation and illustration: IAW.

Figure 148: Population 0-14 years (share of total population)



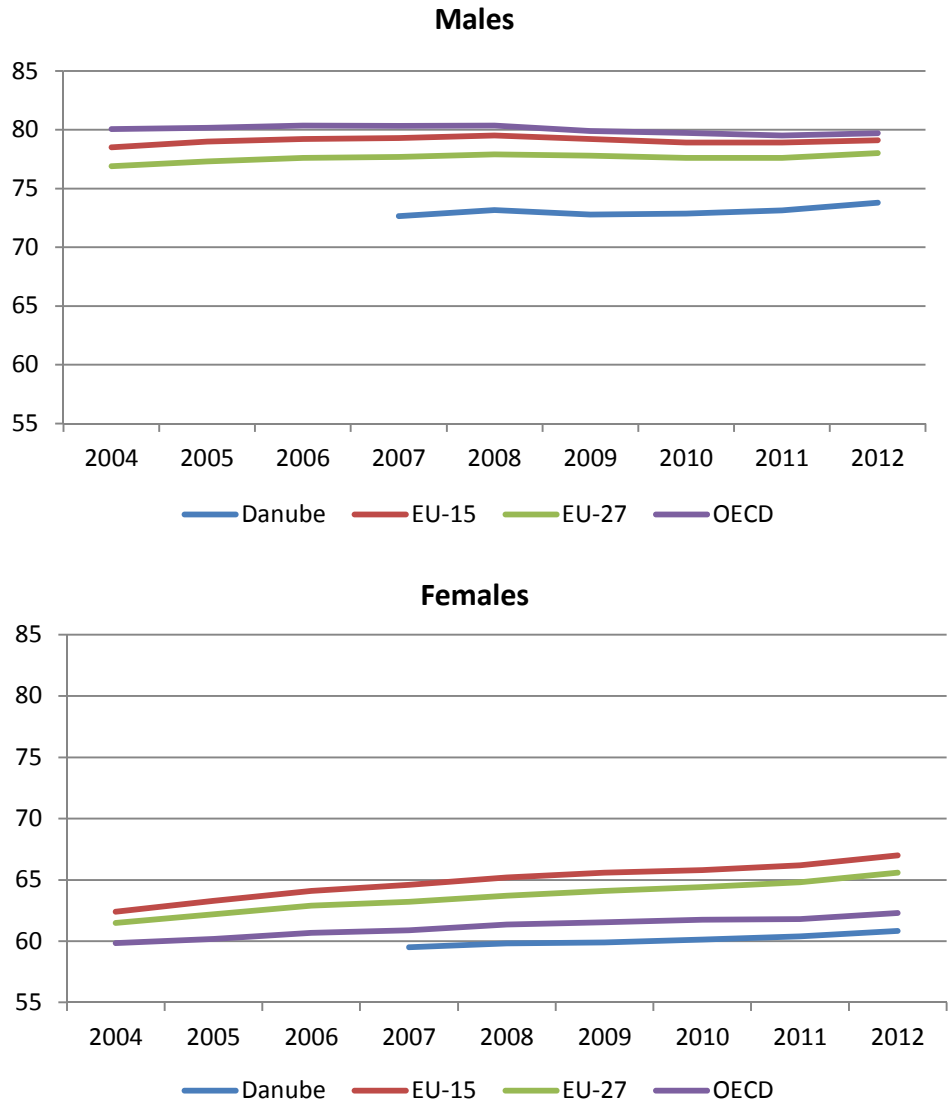
Source: Eurostat, OECD. Calculation and illustration: wiiw.

Figure 149: Population 65 years and older (share of total population))



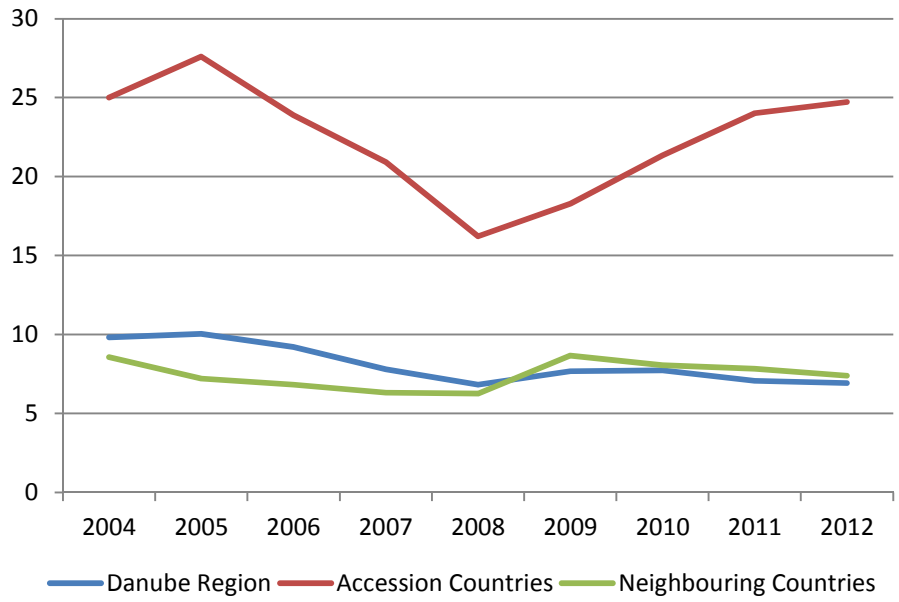
Source: Eurostat, OECD. Calculation and illustration: wiiw.

Figure 150: Activity rates 2004-2012, by gender (in % of the population of males and females respectively)



Source: Eurostat, OECD. Calculation and illustration: wiiw.

Figure 151: Unemployment rates, by subregions of the Danube Region (in %)



Notes: Danube Region: BW, BY, AT, HU, CZ, SK, SI, BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA.
Source: Eurostat, OECD. Calculation and illustration: wiiw.

Table 19: Global Competitiveness Index

Country	Global Competiveness Index	Domestic Market Size	Cost of crime and violence	Gov. Regulation
Germany	5,51	5,84	5,56	3,63
Change	±	±	-	+
Austria	5,15	4,38	5,99	3,35
Change	±	±	±	-
Hungary	4,25	3,9	4,86	2,44
Change	-	-	-	-
Czech Republic	4,43	4,16	5,01	2,63
Change	-	±	±	-
Slovakia	4,1	3,67	4,66	2,4
Change	-	±	-	+
Slovenia	4,25	3,09	5,78	2,63
Change	-	-	+	-
Bulgaria	4,31	3,57	3,91	3,05
Change	+	±	-	+
Romania	4,13	4,24	5,06	2,8
Change	±	-	+	-
Croatia	4,13	3,34	5,31	2,277
Change	-	-	+	-
Serbia	3,77	3,47	4,27	2,35
Change	-	±	-	+
Bosnia-Herzegovina	4,02	2,88	6,22	3,5
Change	-	-	+	+
Montenegro	4,2	1,88	5,16	3,59
Change	+	±	±	+
Moldova	3,94	2,31	5,09	2,84
Change	±	±	±	+
Ukraine	4,05	4,38	5	2,588
Change	-	±	+	-

Country	Property Rights	Intellectual property rights	Trade barriers	Flexibility of wage determina-tion
Germany	5,8	5,55	4,43	3,34
Change	-	-	-	-
Austria	5,88	5,4	4,8	2,39
Change	-	-	-	-
Hungary	3,7	3,8	4,55	4,88
Change	-	-	-	-
Czech Republic	3,88	3,81	4,34	5,18
Change	-	-	-	-
Slovakia	3,93	3,74	4,6	5,07
Change	-	-	-	-
Slovenia	4,25	4,19	4,54	4,18
Change	-	-	-	-
Bulgaria	3,53	3,04	3,78	5,29
Change	-	+	-	-
Romania	3,94	2,898	3,75	5,09
Change	-	-	-	-
Croatia	3,792	3,5	4,42	5,31
Change	-	+		+
Serbia	3,18	2,869	3,97	5,44
Change	-	+	-	+
Bosnia-Herzegovina	3,679	2,469	3,98	4,4
Change	+	+	-	-
Montenegro	4,22	3,6	4,25	4,92
Change	-	+	-	-
Moldova	3,171	2,708	4,36	5,44
Change	-	-	+	-
Ukraine	2,51	2,499	3,85	5
Change	-	-	-	-

Note: Change to 2008/2009.

Source: Global Competitiveness Report 2008/9 – 2013/14, Calculation and illustration: IAW

Table 20: Economic Freedom

Country	Property Rights	Freedom from Corruption	Fiscal Freedom	Government Spending	Business Freedom	Labour Freedom	Monetary Freedom
DE	90	80	61,8	37,3	92,1	43,8	81,2
A	90	78	51,1	23,5	73,6	80,4	79,3
H	65	46	79,7	29,7	79,1	64,4	77,1
CZ	70	44	82	43,5	65,8	85,5	81,7
SK	50	40	84,7	58	71	72,2	79,1
SI	60	59	65,7	22,3	80,7	40,4	81,6
HR	30	33	94	64,2	73,6	74,8	78,6
BG	40	36	87,9	62,2	70,4	63,5	74,7
EO	40	40	75,4	48,7	63	42,4	81,1
RS	40	33	84,2	40,3	60,2	70,4	65,3
BA	20	32	83,2	26,9	54,3	61,2	79
ME	40	40	92,4	41,5	72,7	71,4	79,9
MD	40	29	87,2	50,1	69,7	40,9	73,4
UA	30	23	78,2	29,4	47,6	49,9	71

Country	Trade Freedom	Investment Freedom	Financial Freedom	change from 2008	Score 2009	Overall Score
DE	86,8	85	70	2,3	70,5	72,8
A	86,8	85	70	0,57	71,2	71,8
H	86,8	75	70	0,48	66,8	67,3
CZ	86,8	70	80	1,53	69,4	70,9
SK	86,8	75	70	-0,72	69,4	68,7
SI	86,8	70	50	-1,25	62,9	61,7
HR	86,8	55	60	0,4	64,6	65
BG	86,8	80	50	1,95	63,2	65,1
EO	87,5	75	60	6,21	55,1	61,3
RS	77,9	65	50	2,03	56,6	58,6
BA	86,4	70	60	4,2	53,1	57,3
ME	83	55	50	4,39	58,2	62,6
MD	80	35	50	0,63	54,9	55,5
UA	84,4	20	30	-2,45	48,8	46,3

Source: Heritage Foundation (2013), Calculation and illustration: IAW

Table 21: EU 2012 targets: Licensing time and cost for countries

Group	Country	Time in days	Costs in €
Member States Area 1	DE	6	225
	AT	11	385
Member States Area 2	HU	2	392
	CZ	15	345
	SK	12	335
	SI	3	0
Member States Area 3	BG	4	40-80
	RO	3	100-125
	HR	1 – 5	>250
Accession Countries	RS	1 – 5	10 - 50
	BA	1 – 5	>250
	ME	1 – 5	10 - 50
Neighbouring Coun-tries	MD	1 – 5	10 - 50
	UA	5 - 15	10 - 50

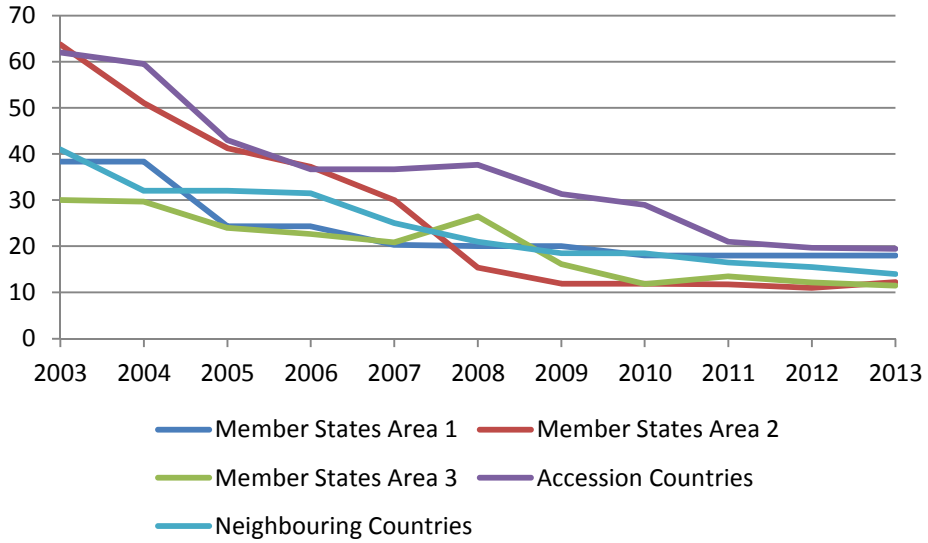
Notes: Red: Does comply with targets, Yellow: Does partly comply with targets, Green: Does comply with targets.
Source: SME Performance Review (2012), SME Policy Index (2012). Calculation and Illustration: IAW

Table 22: World Rank 2013 by country in the category „Starting a Business“

AT	HU	CZ	SK	SI	BG	RO	HR	RS	BA	ME	MD	UA	DE
138	59	146	108	38	65	60	80	45	174	69	81	47	111
-	-	-	-	-	-	+	-	-	-	-	+	+	-

Source: Doing Business 2014, Green (+) means improvement, red (-) decline compared to 2012. Calculation and Illustration: IAW.

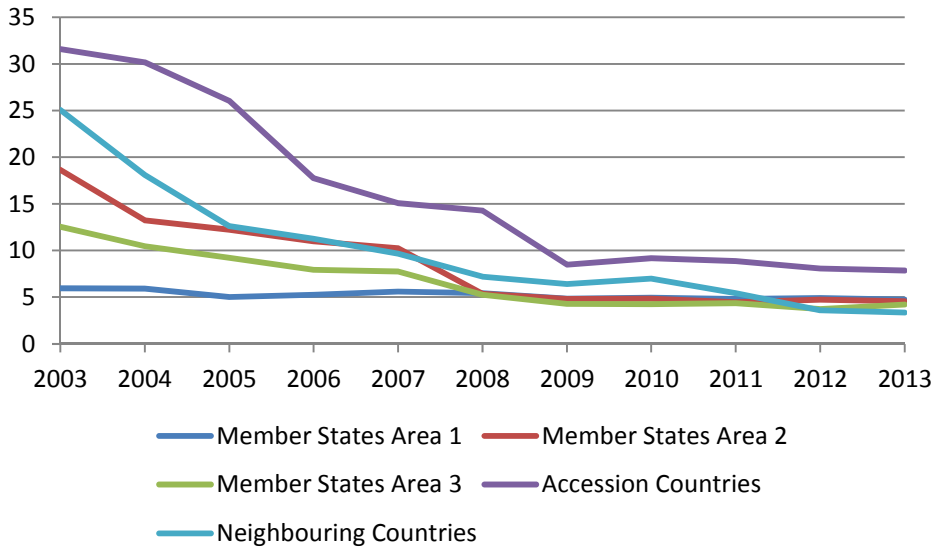
Figure 152: Time to complete business-registration procedures, by subregion (in days)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. Median time „necessary in practice to complete a procedure with minimum follow-up with government agencies and no extra payments“. The company form is a limited liability.

Source: Doing Business (2004-2014). Calculation and illustration: IAW.

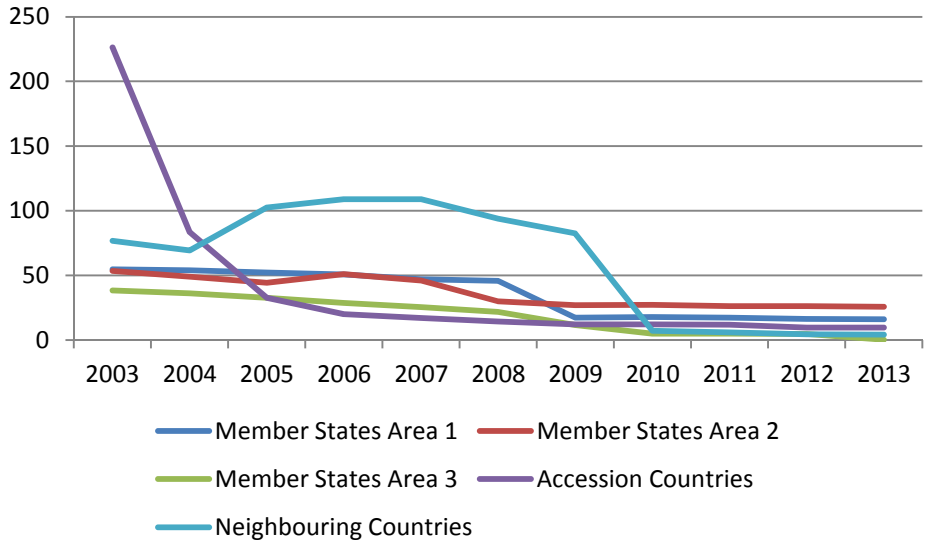
Figure 153: Cost to complete business-registration procedures, by subregions of the Danube Region (in % of income per capita)



Notes: Member States Area 1: BW, BY, AT; Member States Area 2: HU, CZ, SK, SI; Member States Area 3: BG, RO, HR; Accession Countries: RS, BA, ME; Neighbouring Countries: MD, UA. The cost includes all official fees and fees for legal or professional services if such services are required by law.

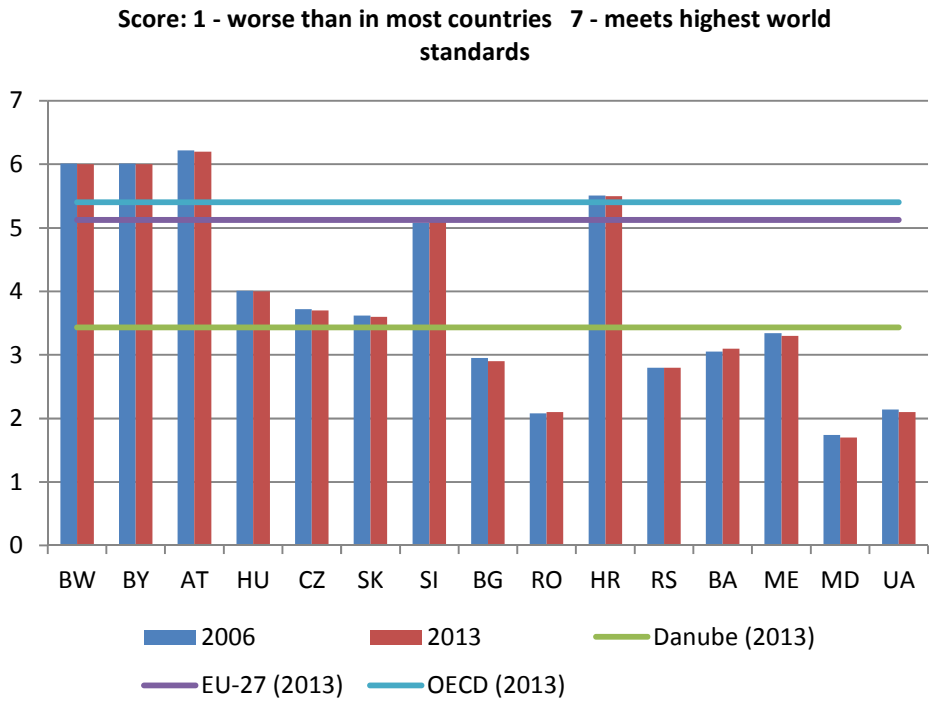
Source: Doing Business (2004-2014). Calculation and illustration: IAW

Figure 154: Paid-in Minimum Capital Requirements, by subregions of the Danube Region (in % of income per capita)



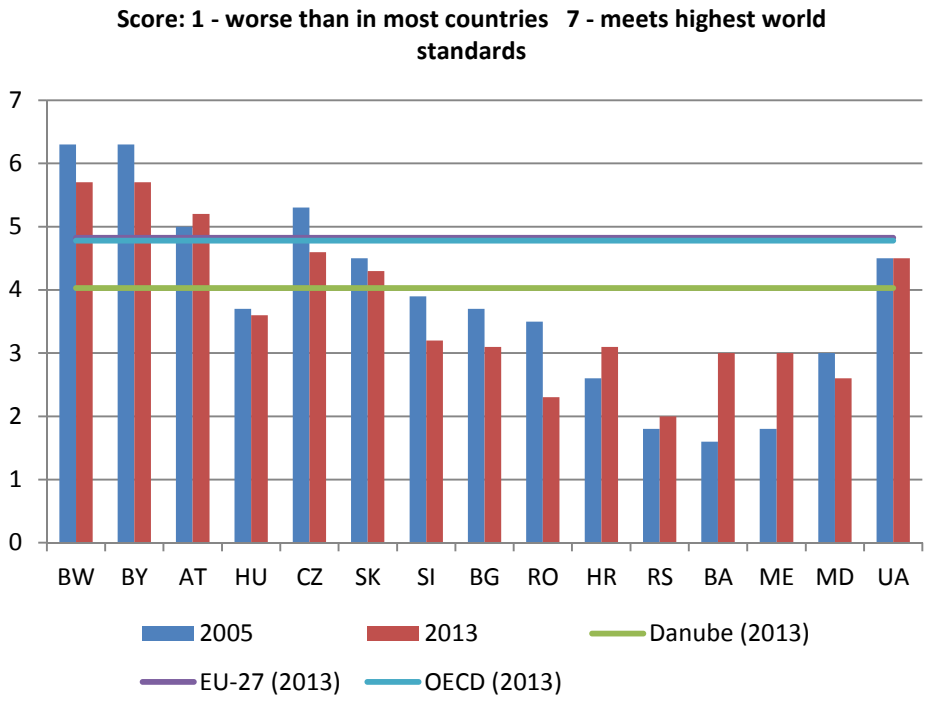
Source: Doing Business (2004-2014), Calculation and illustration: IAW

Figure 155: WEF Road Scores 2006 and 2013



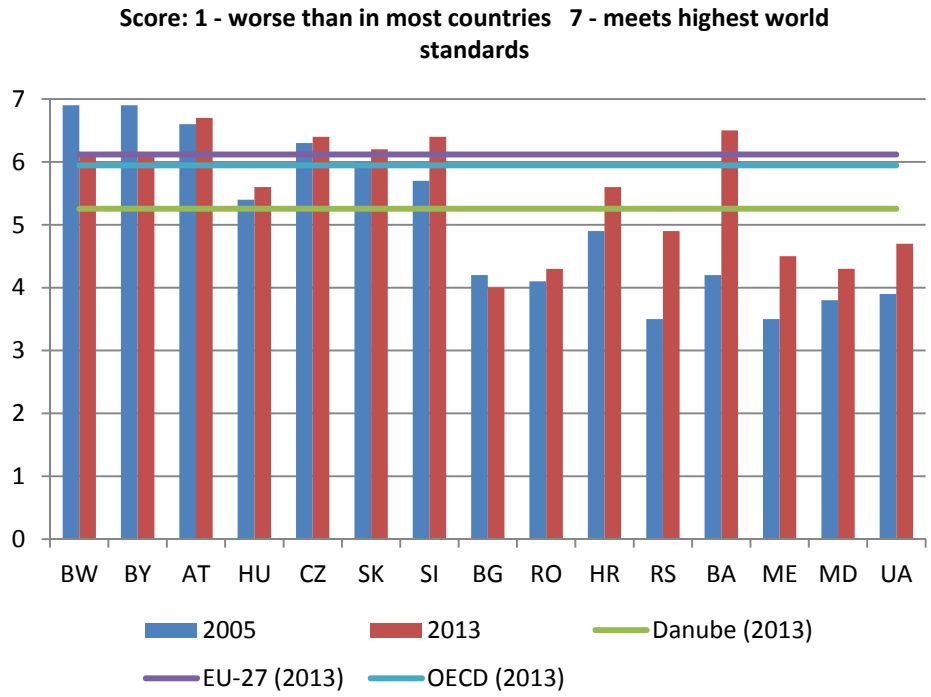
Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 156: WEF Railroad Scores 2005 and 2013



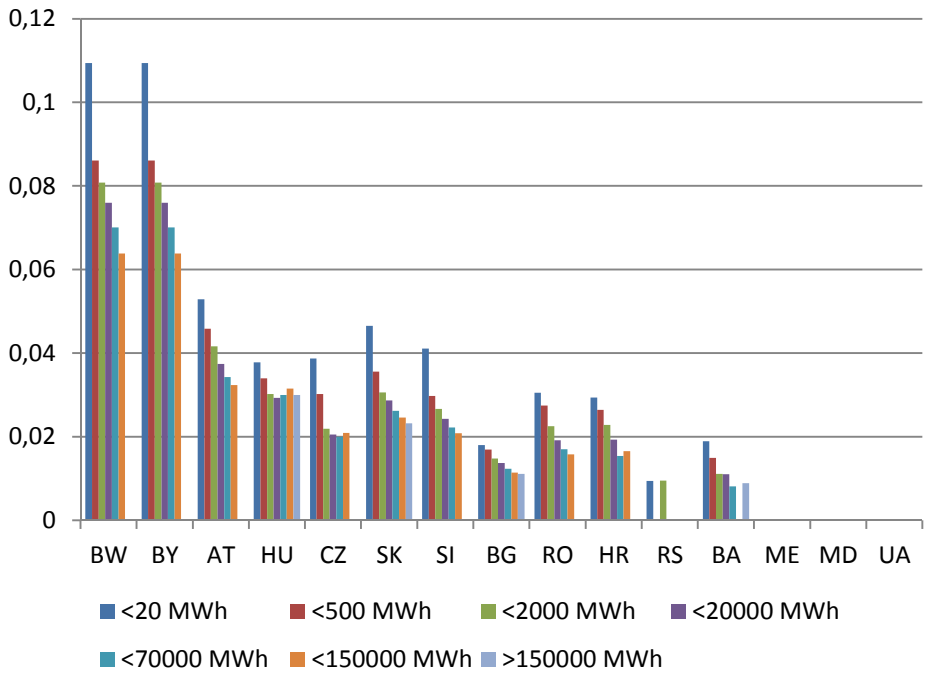
Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 157: WEF Electricity Score 2005 and 2013



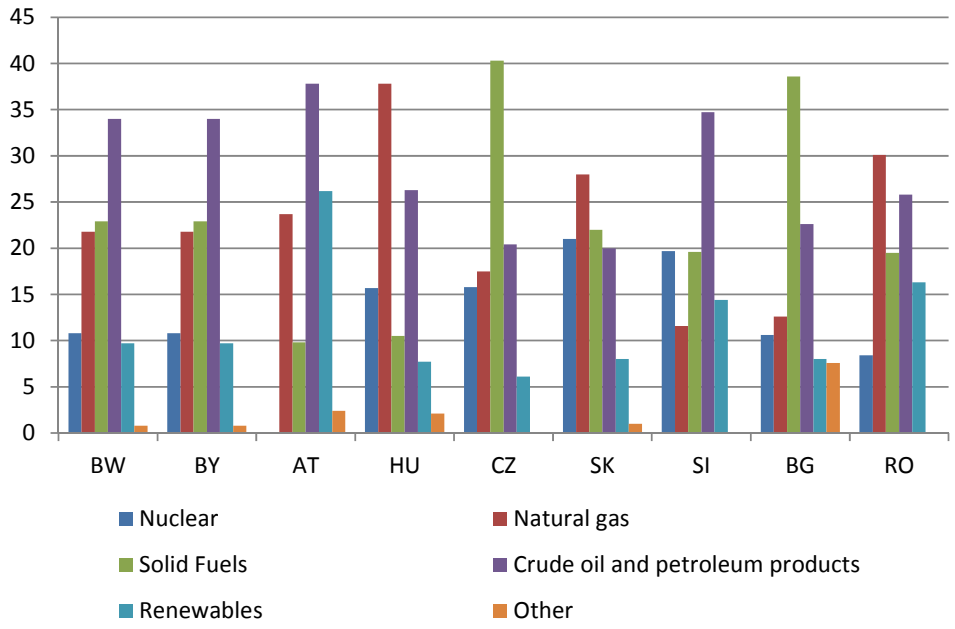
Source: Schwab, K. (2005-2013), Global Competitiveness Report, World Economic Forum, Geneva, Switzerland, Database of the World Bank (Code: SP.POP.TOTL), Statistical Office of Germany. Calculation and illustration: ZEW.

Figure 158: Taxes on electricity prices 2012 (in Cent/kWh)



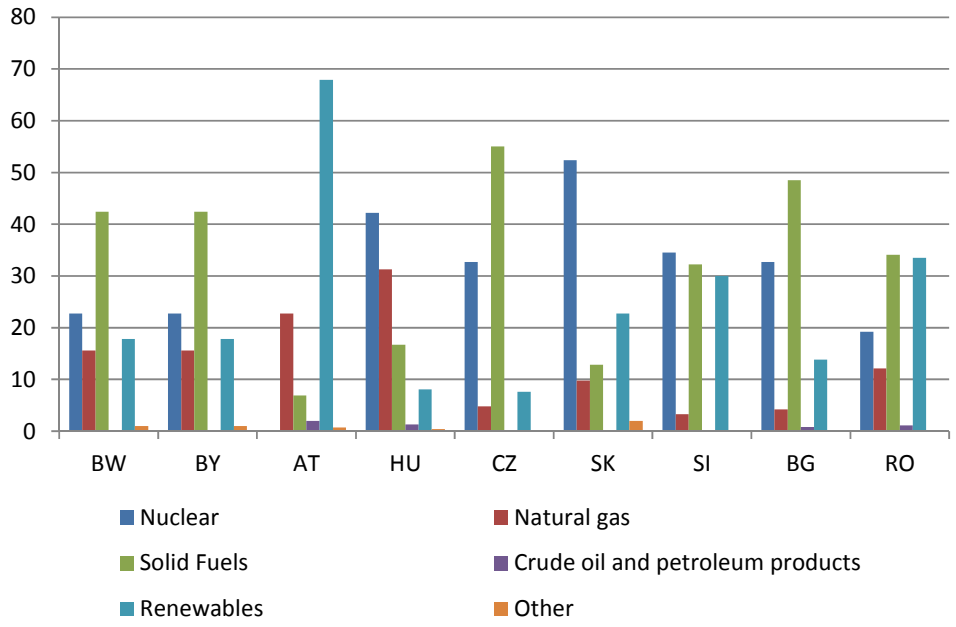
Source: European Commission (2011), Energy markets in the European Union in 2011. Calculation and illustration: ZEW.

Figure 159: Gross national energy consumption 2010 (in %)



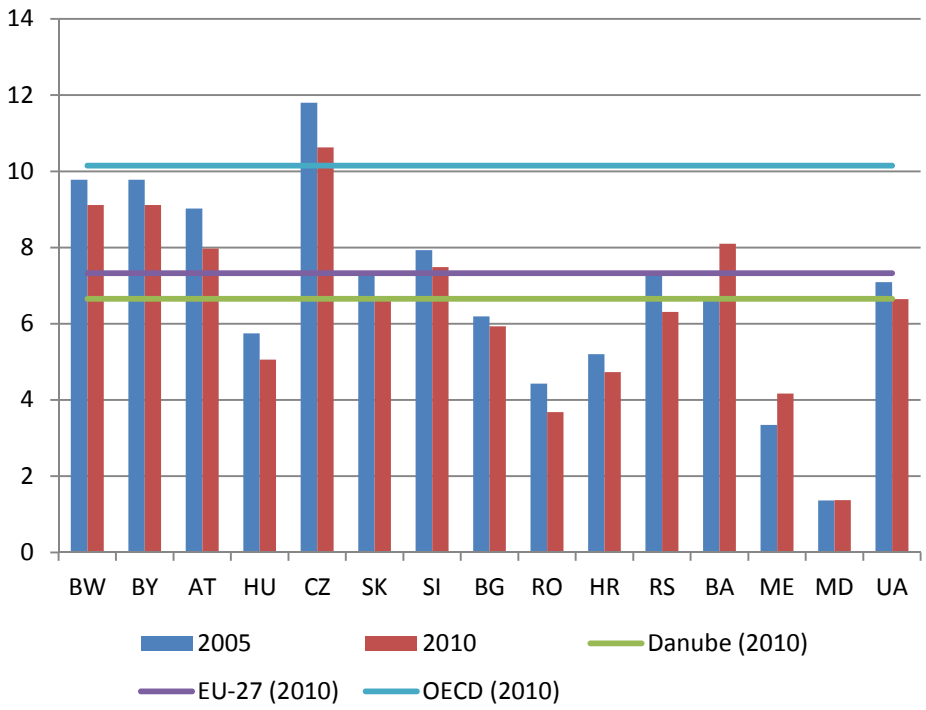
Source: European Commission (2011), Energy markets in the European Union in 2011. Calculation and illustration: ZEW.

Figure 160: Gross electricity generation 2010 (in %)



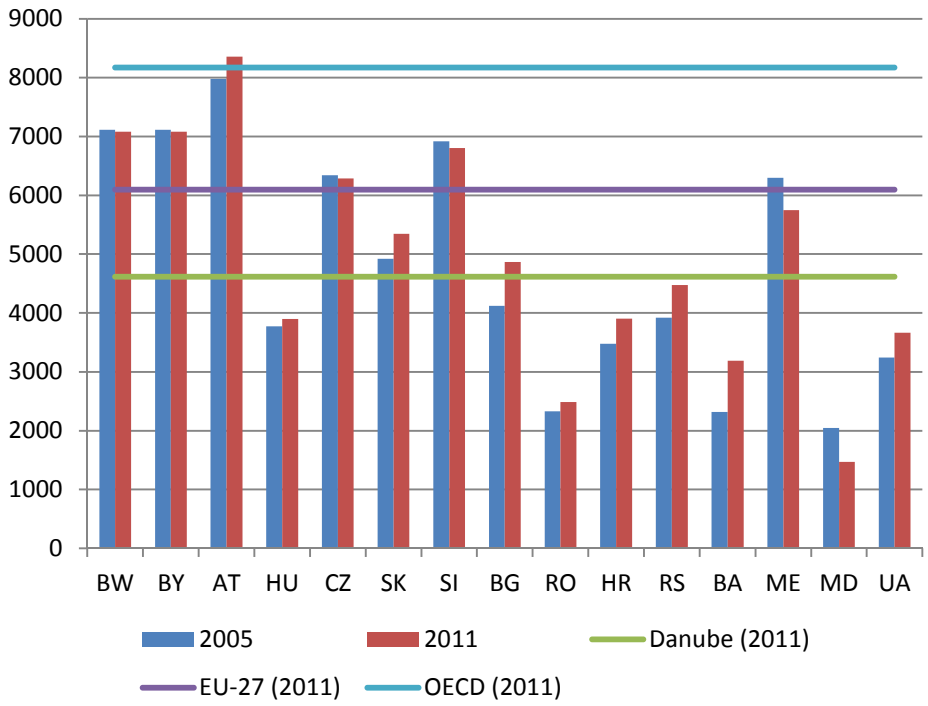
Source: European Commission (2011), Energy markets in the European Union in 2011. Calculation and illustration: ZEW.

Figure 161: CO^2 emissions (in metric ton per capita)



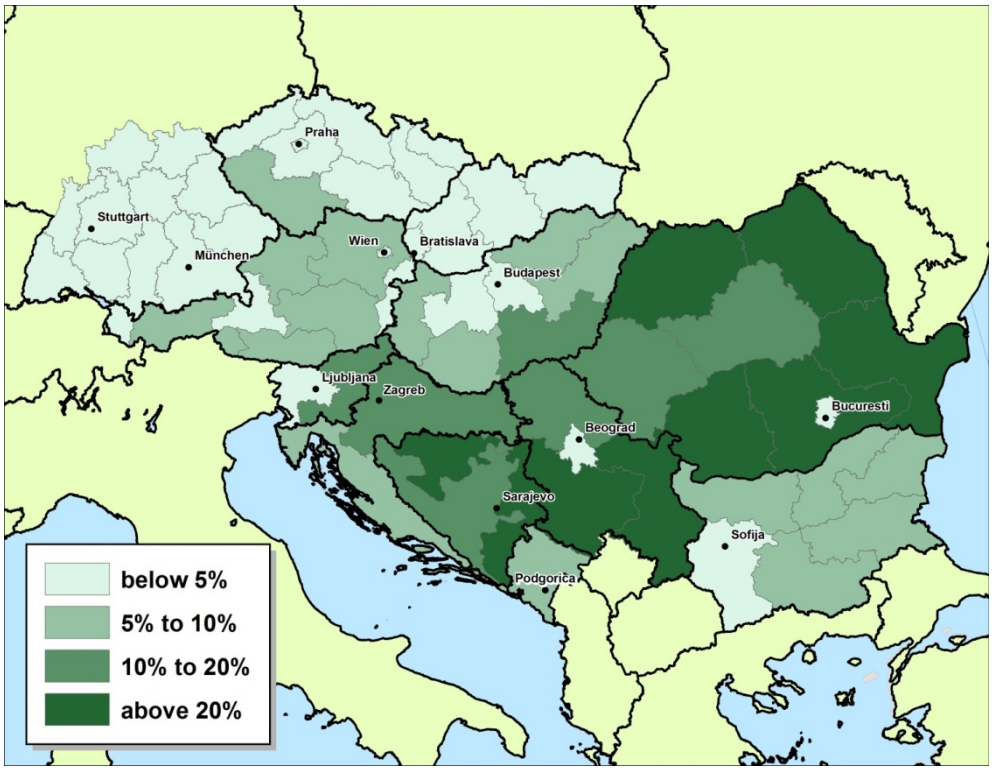
Source: Database of the World Bank (Code: EN.ATM.CO2E.PC). Calculation and illustration: ZEW.

Figure 162: Electric power consumption (in kWh per capita)



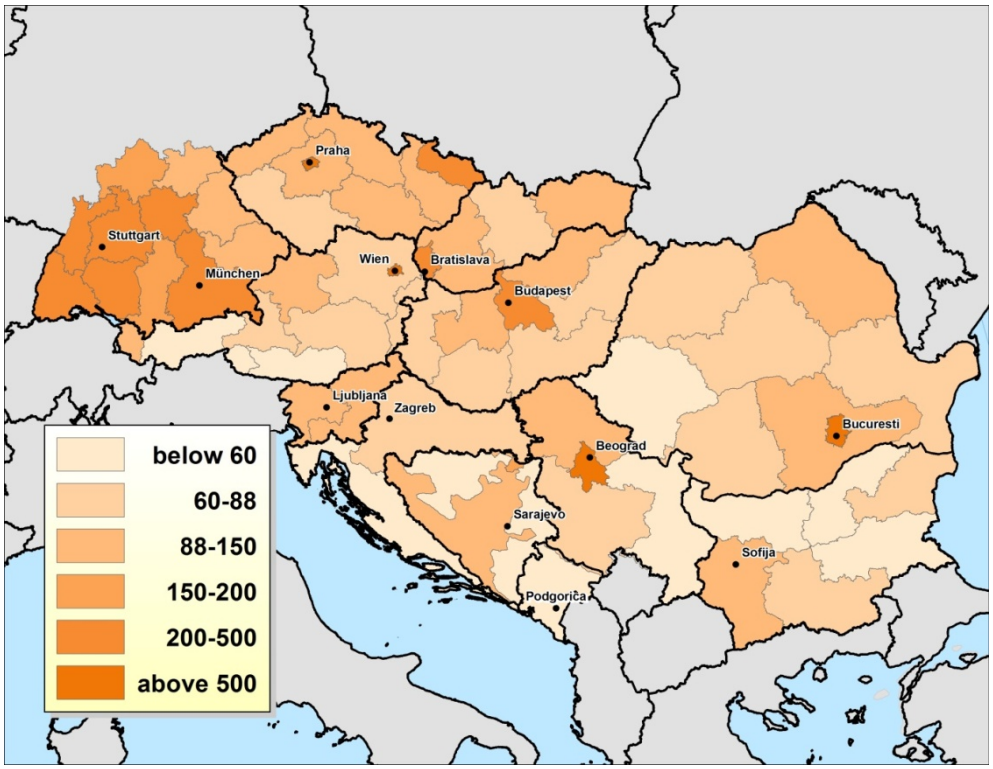
Source: Database of the World Bank (Code: EG.USE.ELEC.KH.PC). Calculation and illustration: ZEW.

Figure 163: Share of agriculture in total employment 2011



Source: Eurostat, national statistics. Calculation and illustration: wiiw.

Figure 164: Population density 2011



Source: Eurostat, national statistics. Calculation and illustration: wiiw.

Table 23: Regions in the DR, population & population density, 2011

Code	Region	Population	Population density
AT	**AUSTRIA**	**8,404,252**	**100.2**
AT11	Burgenland	284,897	71.9
AT12	Niederösterreich	1,611,981	84.0
AT13	Wien	1,714,142	4130.5
AT21	Kärnten	558,271	58.5
AT22	Steiermark	1,210,614	73.8
AT31	Oberösterreich	1,412,640	117.9
AT32	Salzburg	531,721	74.3
AT33	Tirol	710,048	56.2
AT34	Vorarlberg	369,938	142.2
BG	**BULGARIA**	**7,369,431**	**66.5**
BG31	Severozapaden	848,230	44.5
BG32	Severen tsentralen	862,120	58.2
BG33	Severoiztochen	966,328	66.0
BG34	Yugoiztochen	1,078,597	54.5
BG41	Yugozapaden	2,133,731	105.3
BG42	Yuzhen tsentralen	1,480,425	66.3
CZ	**CZECH REPUBLIC**	**10,486,731**	**133.0**
CZ01	Praha	1,234,037	2487.5
CZ02	Strední Cechy	1,264,986	114.8
CZ03	Jihozápad	1,207,027	68.5
CZ04	Severozápad	1,132,252	130.9
CZ05	Severovýchod	1,508,735	121.3
CZ06	Jihovýchod	1,675,872	119.8
CZ07	Strední Morava	1,229,117	133.2
CZ08	Moravskoslezsko	1,234,705	227.5
	GERMAN DANUBE R.		
DE11	Stuttgart	4,002,571	379.1
DE12	Karlsruhe	2,744,226	396.6
DE13	Freiburg	2,199,125	235.0
DE14	Tübingen	1,807,958	202.7
DE21	Oberbayern	4,382,325	250.0
DE22	Niederbayern	1,189,384	115.2
DE23	Oberpfalz	1,081,120	111.6
DE24	Oberfranken	1,071,306	148.1
DE25	Mittelfranken	1,711,566	236.2
DE26	Unterfranken	1,318,076	154.5
DE27	Schwaben	1,784,919	178.6
HR	**CROATIA**	**4,412,137**	**78.0**
HR03	Jadranska Hrvatska	1,466,689	59.4
HR04	Kontinentalna Hrvatska	2,945,448	92.4
HU	**HUNGARY**	**9,985,722**	**107.3**
HU10	Közép-Magyarország	2,971,246	429.6
HU21	Közép-Dunántúl	1,094,104	98.4
HU22	Nyugat-Dunántúl	994,698	87.8
HU23	Dél-Dunántúl	940,585	66.4
HU31	Észak-Magyarország	1,194,697	89.0
HU32	Észak-Alföld	1,481,922	83.6
HU33	Dél-Alföld	1,308,470	71.4

Code	Region	Population	Population density
RO	**ROMANIA**	**21,413,815**	**89.8**
RO11	Nord-Vest	2,717,532	79.6
RO12	Centru	2,522,692	74.0
RO21	Nord-Est	3,703,283	100.5
RO22	Sud-Est	2,802,532	78.4
RO31	Sud - Muntenia	3,253,712	94.4
RO32	Bucuresti - Ilfov	2,267,419	1245.0
RO41	Sud-Vest Oltenia	2,232,814	76.4
RO42	Vest	1,913,831	59.7
SI	**SLOVENIA**	**2,050,189**	**101.1**
SI01	Vzhodna Slovenija	1,083,643	88.7
SI02	Zahodna Slovenija	966,546	119.9
SK	**SLOVAKIA**	**5,392,446**	**110.0**
SK01	Bratislavský kraj	599,931	292.2
SK02	Západné Slovensko	1,838,786	122.7
SK03	Stredné Slovensko	1,349,286	83.0
SK04	Východné Slovensko	1,604,443	102.0
ME	**MONTENEGRO**	**619,872**	**44.9**
BH	**BOSNIA AND HERCEGOVINA**	**3,843,183**	**75.0**
	Fed. of Bosnia & Hercegovina	2,338,277	89.6
	Republika Srpska	1,429,668	58.0
	District Brcko	75,238	152.6
RS	**SERBIA**	**7,186,862**	**92.6**
	Beogradski region	1,659,440	513.1
	Vojvodine	1,931,809	89.4
	Sumadijei Zapadne Srbije	2,031,697	76.7
	Juzne i Istocne Srbije	1,563,916	59.6

Source: Eurostat, national statistics

Table 24: National and International SME-Financing Support Programmes and Institutions in the Danube Region

				EU Member States					Accession Countries			Neighbouring Countries	
Austria	Hungary	Germany	Bulgaria	Romania	Slovenia	Czech Rep.	Slovak Rep.	Croatia	Montenegro	Serbia	Bosnia & Herzegov.	Moldova	Ukraine
International Programmes													
Entrepreneurship and Innovation Programme (EIP) as part of the Competitiveness and Innovation Framework Programme													
Activities Supporting Small and Medium-Sized Enterprises by the European Investment Bank (EIB)													
Joint European Resources for Micro to Medium Enterprises Initiative (JEREMIE)												Joint IFI Action Plan	
		Joint Action to Support Microfinance Institutions (JASMINE)						Western Balkans Enterprise Development and Innovation Facility (WB EDIF)					

				EU Member States					Accession Countries			Neighbouring Countries	
Austria	Hungary	Germany	Bulgaria	Romania	Slovenia	Czech Rep.	Slovak Rep.	Croatia	Montenegro	Serbia	Bosnia & Herzegov.	Moldova	Ukraine
Network of European Financial Institutions for SMEs - Development Banks													
AWS Austria Economic Service - Dev. Bank	MFB Hungarian Dev. Bank	KfW Banking Group	Bulgarian Dev. Bank (BDB), Black Sea Trade and Dev. Bank (BSTDB)	Black Sea Trade and Dev. Bank (BSTDB)	SID Bank	Czech-Moravian Guarantee and Dev. Bank (CMZRB)	SZRB - Slovak Guarantee and Dev.Bank	HBOR Croatian Bank for Re-construction and Dev.	Hipotekarna Banka A.D.		ProCredit Bank Bosnia and Herzegovina	Black Sea Trade and Dev. Bank (BSTDB)	Ukrainian Bank for Re-construction and Dev. (UBRD), Black Sea Trade and Dev. Bank (BSTDB)

				EU Member States					Accession Countries			Neighbouring Countries	
Austria	Hungary	Germany	Bulgaria	Romania	Slovenia	Czech Rep.	Slovak Rep.	Croatia	Montenegro	Serbia	Bosnia & Herzegov.	Moldova	Ukraine
National Programmes and the Sponsoring Institutions													
SME Programme, SME Fund, Small Credit Programme	New Hungary Loan Programme for SMEs	Programmes for Promoting R&D in Enterprises	Loans for financing SMEs	National Credit Guarantee Fund for SMEs	Bank loan guarantee line and equity financing instruments	Guarantees and loans are provided directly to SMEs	Bank Guarantees for Loans and Direct Loans to SMEs	Loan Programme for the Dev. of Private SMEs	Strategy for Dev. of SMEs 2011-2015	Dev. Fund of the Republic of Serbia	Establish-ment of Microcredit System	Fostering SME Dev.	Ukraine Micro Lending Programme (UMLP)
AWS Austria Economic Service - Dev. Bank	*MFB Hungarian Dev. Bank*	*IHK Karlsruhe*	*BDB Bulgarian Dev. Bank*	*FNGCIMM (non-bank financial institution)/ Ministry of Economy*	*Slovene Enterprise Fund (SEF)*	*CMZRB - Czech-Moravian Guarantee & Dev. Bank*	*SZRB - Slovak Guarantee & Dev.Bank*	*HBOR Croatian Bank for Re-construction and Dev.*	*Montenegro - Directorate for Dev. of SMEs*	*Serbian Government*	*Banking Agency of the Federation of Bosnia and Herzegovina*	*OECD Private Sector Dev.*	*EBRD and the German-Ukrainian Fund (GUF)*
	Szechenyi Card Programme - Subsidised interest loans to SMEs	SME Credit Programme (MKP)	Guaranteed Loans for SMEs by the National Guarantee Fund (NGF)	Kogalni-ceanu Programme - Subsidized interest credit lines	Financial Services for SMEs	Loan guarantees, export credit insurance, direct investment	SME Finance Facility		Support for SMEs Sector and Entre-preneurs (direct loans, guarantees)	Loans for Start-ups Programme	SME Dev. Strategy (2009-2011)	State Credit Guarantee Fund	
	AVHGA	*LfA Promotional Bank Bavaria*	*United Bulgarian Bank*	*Agency for Implementa-tion of Projects and Programmes for SMEs*	*SID Bank*	*The Czech Export Bank, Export Guarantee & Insurance Company*	*OTP Banka Slovensko*		*Investment and Dev. Fund of Montenegro*	*Republic Agency for the Dev. of SMEs & Entre-preneurship*	*Ministry of Foreign Trade and Economic Relations of BiH*	*Organization for SME Sector Dev. (ODIMM)*	
	Rural Credit Guarantee Foundation					Operational Programme Enterprise & Innovation (OPEI)	Micro-loan Programme			Programme for Encourage-ment of Balanced Regional Dev.			
	AVHGA					*The Ministry of Industry and Trade of the Czech Republic*	*National Agency for Development of SMEs (NADSME)*			*Ministry of Economy and Regional Development of Serbia*			

Table 25: Sectoral classification of agglomerations based on European Cluster Observatory – Standard sectors

1. Aerospace
2. Agricultural products
3. Apparel
4. Automotive
5. Biotech
6. Building fixtures, equipment and services
7. Business services
8. Chemical products
9. Construction
10. Construction materials
11. Distribution
12. Education and knowledge creation
13. Entertainment
14. Farming and animal husbandry
15. Financial services
16. Footwear
17. Furniture
18. Heavy Machinery
19. Instruments
20. IT
21. Jewellery and precious metals
22. Leather products
23. Lighting and electrical equipment
24. Maritime
25. Media and publishing
26. Medical devices
27. Metal manufacturing
28. Oil and gas
29. Paper products
30. Pharmaceuticals
31. Plastics
32. Power generation and transmission
33. Processed food
34. Production technology
35. Sporting, recreational and children's goods
36. Stone quarries
37. Telecom
38. Textiles
39. Tobacco
40. Tourism and hospitality
41. Transportation and logistics

Table 26: Quantitative cluster identification approach – NACE 3 sectors with 2&3 star clusters in NUTS 2 areas from at least 3 countries of the Danube Region

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Apparel							
BG31	Severozapaden	11845	337	3	1.16	10.48	6.46
BG32	Severen tsentralen	13790	458	3	1.34	9.78	6.03
BG42	Yuzhen tsentralen	20964	1216	3	2.04	8.88	5.47
RO11	Nord-Vest	17901	678	3	1.75	6.23	3.84
RO12	Centru	20035	520	3	1.95	7	4.31
RO21	Nord-Est	21373	652	3	2.08	9.87	6.08
RO22	Sud-Est	18376	419	3	1.79	7.6	4.68
RO31	Sud - Muntenia	21532	515	3	2.1	8.41	5.18
RO41	Sud-Vest Oltenia	12530	330	3	1.22	7.39	4.55
BG41	Yugozapaden	20064	1056	2	1.96	3.68	2.27
HR00	Hrvatska	16221	1367	2	1.58	3.08	1.9
RS12	Å umadija and Western Serbia	10973	1709	2	1.07	6.51	4.01
SK04	Vychodne Slovensko	6247	79	2	0.61	5.06	3.11
UA16	Zakarpattya oblast	5023	62	2	0.49	8.66	5.33
6 countries	**14 NUTS 2 regions**	**216874**	**9398**				
Textiles							
AT34	Vorarlberg	3208	227	2	0.4	5.6	2.68
BG41	Yugozapaden	11072	496	2	1.39	2.61	1.25
BG42	Yuzhen tsentralen	8465	348	2	1.06	4.62	2.21
CZ03	Jihozapad	8456	399	2	1.06	3.1	1.48
CZ04	Severozapad	8030	254	2	1.01	3.35	1.6
CZ06	Jihovychod	8096	573	2	1.02	2.26	1.08
HR00	Hrvatska	8554	552	2	1.07	2.09	1
RO21	Nord-Est	8803	308	2	1.11	5.23	2.5
CZ05	Severovychod	21847	860	3	2.74	6.58	3.15
RO42	Vest	8635	184	2	1.08	4.7	2.25
6 countries	**10 NUTS 2 regions**	**95166**	**4201**				
Footwear							
BA00	Bosnia and Herzegovina	9262		2	3.19	8.67	1.51
BG41	Yugozapaden	6895	155	2	2.37	4.46	0.78
BG42	Yuzhen tsentralen	3987	147	2	1.37	5.96	1.04
CZ07	Stredni Morava	3299	126	2	1.14	3.48	0.61
RO11	Nord-Vest	17802	331	3	6.13	21.86	3.81
RO42	Vest	10479	190	3	3.61	15.62	2.73
HU32	Eszak-Alfold	2973		2	1.02	5.83	1.02
RO12	Centru	9495	141	2	3.27	11.71	2.04
RO21	Nord-Est	4866	181	2	1.67	7.93	1.38
RO32	Bucuresti - Ilfov	5012	266	2	1.73	3.33	0.58
RS13	Southern and Eastern Serbia	3488	215	2	1.2	10.95	1.91
SK02	Zapadne Slovensko	7232	63	2	2.49	12.47	2.18
7 countries	**12 NUTS 2 regions**	**84790**	**1815**				

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Leather products							
BG42	Yuzhen tsentralen	2189	87	2	1.94	8.44	0.57
CZ03	Jihozapad	1202	120	2	1.07	3.11	0.21
CZ05	Severovychod	1509	183	2	1.34	3.21	0.22
HR00	Hrvatska	3839	146	2	3.41	6.65	0.45
HU22	Nyugat-Dunantul	1539		2	1.37	9.74	0.66
HU32	Eszak-Alfold	1400		2	1.24	7.08	0.48
RO12	Centru	3701	129	2	3.28	11.77	0.8
RO42	Vest	1410	82	2	1.25	5.42	0.37
SI00	Slovenija	1896	80	2	1.68	3.84	0.26
6 countries	**9 NUTS 2 regions**	**18685**	**827**				
Furniture							
AT31	Oberösterreich	7249	597	2	0.88	3.17	1.57
CZ06	Jihovychod	9076	400	2	1.1	2.45	1.21
RO11	Nord-Vest	19820	498	3	2.41	8.58	4.25
RO12	Centru	13043	494	3	1.58	5.67	2.81
UA16	Zakarpattya oblast	3750	41	2	0.46	8.05	3.98
3 countries	**5 NUTS 2 regions**	**52938**	**2030**				
Automotive							
AT22	Steiermark	9334	67	2	0.4	2.04	2.85
CZ02	Stredni Cechy	28842	179	3	1.24	3.77	5.27
CZ05	Severovychod	30191	235	3	1.3	3.11	4.35
DE11	Stuttgart	114771	279	3	4.93	5.27	7.37
DE12	Karlsruhe	42210	152	3	1.81	2.95	4.13
DE21	Oberbayern	84791	175	3	3.64	3.48	4.86
DE22	Niederbayern	33864	85	3	1.45	6.05	8.46
DE23	Oberpfalz	21489	88	3	0.92	3.93	5.49
RO31	Sud - Muntenia	22328	154	3	0.96	3.84	5.37
SK02	Zapadne Slovensko	21707	79	3	0.93	4.67	6.53
DE24	Oberfranken	14634	52	2	0.63	2.71	3.79
DE26	Unterfranken	18957	71	2	0.81	2.9	4.05
HU21	Kozep-Dunantul	16655		2	0.72	4.43	6.19
HU22	Nyugat-Dunantul	19460		2	0.84	5.96	8.34
RO12	Centru	14840	150	2	0.64	2.28	3.19
RO42	Vest	18716	108	2	0.8	3.48	4.87
RS12	Å umadija and Western Serbia	12561	268	2	0.54	3.28	4.59
SK01	Bratislavsky kraj	10206	50	2	0.44	2.25	3.14
SK03	Stredne Slovensko	9703	52	2	0.42	3.28	4.58
7 countries	**19 NUTS 2 regions**	**545259**	**2244**				

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Metal manufacturing							
AT22	Steiermark	18241	430	2	0.55	2.77	5.56
AT31	Oberösterreich	19432	588	2	0.58	2.1	4.21
AT34	Vorarlberg	8945	208	2	0.27	3.73	7.47
CZ05	Severovychod	26512	8947	2	0.79	1.91	3.82
CZ07	Stredni Morava	24995	7362	2	0.75	2.29	4.6
DE12	Karlsruhe	32664	1390	2	0.98	1.59	3.19
HU21	Kozep-Dunantul	14421		2	0.43	2.67	5.36
CZ06	Jihovychod	30217	8159	3	0.9	2.01	4.03
CZ08	Moravskoslezsko	52100	4985	3	1.56	4.85	9.74
DE11	Stuttgart	65375	2447	3	1.96	2.09	4.2
DE13	Freiburg	47544	1718	3	1.42	3.13	6.28
DE14	TÃ¼bingen	30095	1076	3	0.9	2.33	4.68
SI00	Slovenija	36066	3640	3	1.08	2.47	4.95
RO22	Sud-Est	16429	262	2	0.49	2.09	4.19
RS12	Å umadija and Western Serbia	16537	2114	2	0.5	3.01	6.04
RS13	Southern and Eastern Serbia	11951	948	2	0.36	3.26	6.54
SK02	Zapadne Slovensko	17823	491	2	0.53	2.67	5.36
SK03	Stredne Slovensko	12130	342	2	0.36	2.85	5.73
SK04	Vychodne Slovensko	16511	156	2	0.49	4.1	8.23
8 countries	**19 NUTS 2 regions**	**497988**	**45263**				
Heavy Machinery							
BG34	Yugoiztochen	6880	31	2	0.83	4.72	2.35
DE11	Stuttgart	25996	166	2	3.13	3.35	1.67
DE26	Unterfranken	7703	67	2	0.93	3.3	1.65
DE27	Schwaben	7378	67	2	0.89	2.37	1.18
HU22	Nyugat-Dunantul	6613		2	0.8	5.69	2.83
RO31	Sud - Muntenia	15247	37	3	1.84	7.36	3.67
RO42	Vest	28445	59	3	3.43	14.85	7.4
RO11	Nord-Vest	12037	58	2	1.45	5.18	2.58
UA16	Zakarpattya oblast	3734	7	2	0.45	7.96	3.97
5 countries	**9 NUTS 2 regions**	**114033**	**492**				
Production technology							
AT21	KÃ¤rnten	4078	66	2	0.27	3.16	2.88
AT31	Oberösterreich	14752	228	2	0.97	3.51	3.19
AT34	Vorarlberg	3995	63	2	0.26	3.66	3.34
DE11	Stuttgart	76575	957	3	5.05	5.39	4.91
DE12	Karlsruhe	36743	585	3	2.42	3.94	3.59
DE13	Freiburg	30469	511	3	2.01	4.42	4.02
DE14	Tübingen	43529	449	3	2.87	7.42	6.76
DE23	Oberpfalz	16583	165	3	1.09	4.65	4.24
DE25	Mittelfranken	22047	263	3	1.45	3.54	3.22
DE26	Unterfranken	23344	206	3	1.54	5.47	4.99
DE27	Schwaben	27773	367	3	1.83	4.88	4.45
SK03	Stredne Slovensko	7365	94	2	0.49	3.82	3.48
3 countries	**12 NUTS 2 regions**	**307253**	**3954**				

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Building fixtures, equipment and services							
AT31	Oberösterreich	12703	512	2	0.66	2.38	2.75
CZ04	Severozapad	13912	821	2	0.72	2.4	2.77
CZ06	Jihovychod	17490	1425	2	0.91	2.02	2.33
CZ03	Jihozapad	18127	1375	3	0.94	2.75	3.18
CZ05	Severovychod	18884	1324	3	0.98	2.36	2.72
DE24	Oberfranken	10411	184	2	0.54	2.33	2.69
HU21	Kozep-Dunantul	8499		2	0.44	2.74	3.16
RO12	Centru	15026	770	2	0.78	2.8	3.23
RS12	Å umadija and Western Serbia	9293	1739	2	0.48	2.94	3.39
RS13	Southern and Eastern Serbia	5308	1158	2	0.28	2.52	2.91
SK02	Zapadne Slovensko	9335	293	2	0.49	2.43	2.81
SK03	Stredne Slovensko	6195	176	2	0.32	2.53	2.93
SK04	Vychodne Slovensko	7898	178	2	0.41	3.41	3.94
UA15	Ivano-Frankivsk oblast	3371	163	2	0.18	3.02	3.49
UA17	Chernivtsy oblast	2330	69	2	0.12	3.24	3.75
8 countries	**15 NUTS 2 regions**	**158782**	**10187**				
Construction							
HR00	Hrvatska	83374	9610	3	1.28	2.49	9.76
RO11	Nord-Vest	42722	5393	2	0.65	2.33	9.15
RO21	Nord-Est	32585	3351	2	0.5	2.36	9.26
RO22	Sud-Est	31170	3052	2	0.48	2.02	7.94
RO31	Sud - Muntenia	34320	3677	2	0.52	2.1	8.25
RO32	Bucuresti - Ilfov	56354	5151	2	0.86	1.66	6.54
RO41	Sud-Vest Oltenia	24706	2179	2	0.38	2.29	8.97
UA17	Chernivtsy oblast	6052	228	2	0.09	2.48	9.73
3 countries	**8 NUTS 2 regions**	**311283**	**32641**				
Biotech							
AT13	Wien	1836	21	2	2.44	5.89	0.27
CZ01	Praha	1368	5	2	1.82	4.94	0.22
CZ06	Jihovychod	1059		2	1.41	3.13	0.14
DE12	Karlsruhe	2679	38	2	3.56	5.8	0.26
DE21	Oberbayern	3103	58	2	4.13	3.94	0.18
3 countries	**5 NUTS 2 regions**	**10045**	**122**				
IT							
AT21	Kärnten	4081	175	2	0.26	3.01	2.88
DE21	Oberbayern	42381	2072	2	2.66	2.54	2.43
DE12	Karlsruhe	29289	866	3	1.84	2.99	2.86
DE25	Mittelfranken	34540	508	3	2.17	5.27	5.05
RO32	Bucuresti - Ilfov	18726	2098	2	1.17	2.27	2.17
3 countries	**5 NUTS 2 regions**	**129017**	**5719**				

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Telecom							
BG41	Yugozapaden	18305	402	2	1.12	2.1	2.07
DE23	Oberpfalz	13227	93	2	0.81	3.44	3.38
HU23	Del-Dunantul	9560		2	0.58	5.01	4.93
HU31	Eszak-Magyarorszag	6803		2	0.42	3.1	3.04
AT13	Wien	18934	189	3	1.16	2.79	2.74
RO32	Bucuresti - Ilfov	26202	1103	3	1.6	3.09	3.04
SK01	Bratislavsky kraj	9129	93	2	0.56	2.86	2.81
6 countries	**7 NUTS 2 regions**	**102160**	**1880**				
Oil and gas							
AT13	Wien	2739	8	2	1.23	2.97	0.4
BA00	Bosnia and Herzegovina	6918		2	3.11	8.46	1.13
CZ04	Severozapad	6682	7	2	3	9.97	1.33
CZ08	Moravskoslezsko	7046	7	2	3.17	9.86	1.32
HU10	Kozep-Magyarorszag	4977		2	2.24	3.07	0.41
RO12	Centru	4009	24	2	1.8	6.46	0.86
RO31	Sud - Muntenia	7829	75	2	3.52	14.09	1.88
RS11	Belgrade	4212	35	2	1.89	7.4	0.99
6 countries	**8 NUTS 2 regions**	**44412**	**156**				
Lighting and electrical equipment							
AT31	Oberösterreich	3553	41	2	0.96	3.45	0.77
CZ05	Severovychod	5402	362	2	1.46	3.49	0.78
CZ06	Jihovychod	3670	979	2	0.99	2.19	0.49
CZ07	Stredni Morava	5101	285	2	1.37	4.21	0.94
DE13	Freiburg	4613	62	2	1.24	2.73	0.61
SK02	Zapadne Slovensko	4453	25	2	1.2	6.01	1.34
UA16	Zakarpattya oblast	3463	10	2	0.93	16.49	3.68
5 countries	**7 NUTS 2 regions**	**30255**	**1764**				
Power generation and transmission							
AT13	Wien	7975	14	2	3.15	7.59	1.15
AT22	Steiermark	3000	13	2	1.18	6.01	0.91
CZ07	Stredni Morava	4741	1618	2	1.87	5.73	0.87
DE11	Stuttgart	5313	92	2	2.1	2.24	0.34
DE12	Karlsruhe	4504	49	2	1.78	2.9	0.44
DE13	Freiburg	3976	60	2	1.57	3.45	0.53
DE25	Mittelfranken	8717	22	2	3.44	8.37	1.27
DE26	Unterfranken	5122	32	2	2.02	7.19	1.09
RO41	Sud-Vest Oltenia	2980	24	2	1.18	7.12	1.08
SI00	Slovenija	4415	76	2	1.74	3.98	0.61
SK02	Zapadne Slovensko	3478	10	2	1.37	6.88	1.05
6 countries	**11 NUTS 2 regions**	**54221**	**2010**				

Code	Region	Employees	Enterprises	Stars	Size	Specialisa-tion	Focus
Farming and animal husbandry							
BG31	Severozapaden	6352	1494	2	0.67	6.06	3.46
BG32	Severen tsentralen	9989	1465	2	1.05	7.64	4.36
BG33	Severoiztochen	9016	2022	2	0.95	6.06	3.46
HU32	Eszak-Alfold	11354		3	1.19	6.8	3.88
HU33	Del-Alfold	12522		3	1.32	8.24	4.71
HU23	Del-Dunantul	8123		2	0.85	7.33	4.19
UA15	Ivano-Frankivsk oblast	2950	207	2	0.31	5.35	3.06
UA17	Chernivtsy oblast	2846	159	2	0.3	8.01	4.58
3 countries	**8 NUTS 2 regions**	**63152**	**5347**				
Processed food							
AT11	Burgenland	3091	243	2	0.07	2.18	5.46
AT12	Niederösterreich	22498	1043	2	0.54	2.02	5.04
BG32	Severen tsentralen	13735	770	2	0.33	2.4	6
BG42	Yuzhen tsentralen	19822	1339	2	0.48	2.07	5.17
HU32	Eszak-Alfold	17053		2	0.41	2.33	5.83
HU33	Del-Alfold	21207		2	0.51	3.19	7.98
RO12	Centru	25294	1290	2	0.61	2.18	5.44
RO21	Nord-Est	21621	1230	2	0.52	2.46	6.15
HR00	Hrvatska	46921	2897	3	1.13	2.2	5.5
RO22	Sud-Est	22128	1396	2	0.53	2.26	5.64
RO31	Sud - Muntenia	26611	1332	2	0.64	2.56	6.4
RS12	Å umadija and Western Serbia	21380	4179	2	0.51	3.12	7.81
RS13	Southern and Eastern Serbia	11657	2580	2	0.28	2.55	6.38
RS20	Vojvodina	30915	3747	2	0.74	3.91	9.78
SK02	Zapadne Slovensko	16738	385	2	0.4	2.02	5.04
UA15	Ivano-Frankivsk oblast	5662	211	2	0.14	2.35	5.87
UA17	Chernivtsy oblast	3583	96	2	0.09	2.31	5.76
8 countries	**17 NUTS 2 regions**	**329916**	**22738**				
Sporting, recreational and children's goods							
AT31	Oberösterreich	2417	44	2	1.2	4.31	0.52
CZ02	Stredni Cechy	2385	299	2	1.18	3.59	0.44
CZ03	Jihozapad	2239	238	2	1.11	3.23	0.39
CZ06	Jihovychod	2620	279	2	1.3	2.88	0.35
CZ07	Stredni Morava	2177	289	2	1.08	3.3	0.4
DE14	Tübingen	2008	34	2	0.99	2.57	0.31
DE24	Oberfranken	2022	44	2	1	4.32	0.52
DE25	Mittelfranken	3135	44	2	1.55	3.78	0.46
3 countries	**8 NUTS 2 regions**	**19003**	**1271**				
Transportation and logistics							
HR00	Hrvatska	46947	2795	2	0.98	1.91	5.5
SK01	Bratislavsky kraj	27711	180	2	0.58	2.97	8.54
AT13	Wien	57512	377	3	1.2	2.89	8.33
HU10	Kozep-Magyarorszag	90110		3	1.88	2.58	7.43
RO22	Sud-Est	47348	1313	3	0.99	4.19	12.07
UA51	Odesa oblast	48686	480	3	1.02	4.53	13.03
6 countries	**6 NUTS 2 regions**	**318314**	**5145**				

Table 27: Sectors and specialisations of cluster initiatives in the Danube Region – qualitative results of survey carried by TMG Upper Austria

Sector	Number of countries	AT	BG	HR	CZ	DE	HU	ME	MD	RO	RS	SK	SI	UA
Automotive	11	x	x	x	x	x	x			x	x	x	x	x
ICT	10	x	x	x	x	x	x			x	x	x	x	
Wood	10	x	x	x	x	x	x	x		x	x		x	
Energy Technology + Renewable Energy	9	x		x	x	x	x			x	x	x	x	
Food	9	x	x	x		x	x	x		x	x			x
Textile	9	x	x	x	x	x	x		x	x	x			
Agro Technology	8	x		x		x	x		x	x	x			x
Engineering	8	x			x	x	x			x	x	x	x	
Environmental Technology incl. Recycling	8	x			x	x	x			x	x		x	
Health Care/ Medical Technology	8	x		x	x	x	x			x	x		x	
Mechatronics	8	x	x	x	x	x	x			x		x		
Biotechnology	7	x			x	x	x			x	x		x	
Electronics	7		x			x	x			x	x	x	x	
Logistics	7	x				x	x			x	x		x	x
Plastics	7	x		x	x	x	x				x	x		
Tourism	7	x		x			x			x	x	x		x
Micro- and Nanotechnology	6	x	x		x	x	x			x				
Business services	5					x	x			x	x			x
Construction	5	x					x				x		x	x
Metallurgy	5		x	x		x					x			x
Aerospace	4					x	x			x	x			
Chemical	4					x	x						x	x
Creative Industries	4					x	x			x	x			
Maritime	4		x	x						x	x			
Packaging	4				x	x	x			x				
Handicraft	3					x	x				x			
Heavy Machinery	3						x						x	x
Optical technologies/Photonics	1					x								

Source: Danube clusters – striving for excellence, Results of the EUSDR working group on Clusters of Excellence within the Steering Group of PA 8 Competitiveness of Enterprises including Cluster Development, flyer, p.7

Table 28: Mapping cluster organisations – case study Romania

No.	Code	Region	Town	Sector	ECO list (yes/no)	Name
1	RO11	Nord-Vest	Cluj Napoca	Environment, Green technologies	No	Romanian Water Cluster
2	RO11	Nord-Vest	Cluj Napoca	Renewable energy	No	TREC - Trans-national Re-newable Ener-gies Cluster
3	RO11	Nord-Vest	Cluj Napoca	Furniture	Yes	Trasylvanian Furniture Clus-ter
4	RO11	Nord-Vest	Cluj Napoca	IT	No	Cluj IT Cluster
5	RO11	Nord-Vest	Oradea	Renewable energy, Tourism	No	Geothermal Cluster
6	RO12	Centru	Alba Iulia	Renewable energy	No	REN ERG Cluster
7	RO12	Centru	Braşov	Aerospace	No	Transylvania Aerospace Cluster
8	RO12	Centru	Cugir	Metal manufacturing	No	Transylvania Metal Processing Competitivenes s Pole
9	RO12	Centru	Odorheiul Secuiesc	Wood processing, Furniture	Yes	REGIOFA Cluster
10	RO12	Centru	Săcele	Automotive, Mechatronics, Electrotechnics	Yes	Electrotechnica l Regional Cluster - ETREC
11	RO12	Centru	Sfântu Gheorghe	Wood industry	Yes	PRO WOOD Regional Wood Cluster
12	RO12	Centru	Sfântu Gheorghe	Renewable energy	No	Green energy biomass cluster
13	RO12	Centru	Sfântu Gheorghe	Agrofood	Yes	AGRO FOOD Regional Cluster
14	RO12	Centru	Sfântu Gheorghe	Textiles, apparel, fashion	Yes	Transylvania Textile & Fash-ion Cluster
15	RO12	Centru	Sfântu Gheorghe	Packaging, printing, design	No	Innovative Regional Clus-ter Packaging-Printing-Design
16	RO12	Centru	Sfântu Gheorghe	Ecotourism	No	Ecotourism Cluster
17	RO12	Centru	Târgu Mureş	Furniture	Yes	Furniture Cluster

18	RO12	Centru	Târgu Mureş	Building	Yes	Green Building and Development Cluster
19	RO21	Nord-Est	Focşani	Textiles	Yes	Cluster Traditions Manufacture Future TMV Sud Est
20	RO21	Nord-Est	Iași	Creative industries	No	Creative Industries Pole Iasi
21	RO21	Nord-Est	Iași	IT, media	No	IT New Media Iasi
22	RO21	Nord-Est	Iași	Medical imaging cluster	No	IMAGO-MOL - The North-East Innovative Regional Cluster for Structural and Molecular Imaging
23	RO21	Nord-Est	Săvineşti	Textiles	Yes	ASTRICO Textiles Cluster
24	RO21	Nord-Est	Suceava	Tourism	No	Tourism Regional Cluster
25	RO22	Sud-Est	Constanta	Renewable energy	No	MedGreen Pole
26	RO22	Sud-Est	Constanţa	Maritime (transportation & logistics)	Yes	Maritime Cluster
27	RO22	Sud-Est	Mangalia	Tourism	No	Health Tourism Cluster
28	RO22	Sud-Est	Sărata Monteoru	Tourism	No	Carpathian Tourism Cluster
29	RO31	Sud-Muntenia	Piteşti	Automotive	Yes	Dacia Renault Competitivenes s Pole
30	RO32	Bucuresti-Ilfov	Bucureşti	Electronics, radio engineering, telecommunications	Yes	ELINCLUS Innovative Cluster
31	RO32	Bucuresti-Ilfov	Bucureşti	Textiles, Footwear	Yes	Romanian Textile Concept Cluster Bucharest
32	RO32	Bucuresti-Ilfov	Bucureşti	Agrofood	No	AGRO FOOD INDAGRO Bucureşti
33	RO32	Bucuresti-Ilfov	Bucuresti	Aerospace	No	Romanian Aerospace Cluster Bucharest

34	RO32	Bucuresti-Ilfov	Bucureşti	Electric engineering, incl. automation and control equipment, data communica-tions	Yes	ALL ELECTRIC Pole
35	RO32	Bucuresti-Ilfov	Bucureşti	Mechatronics	No	MECATREC Regional Clus-ter
36	RO32	Bucuresti-Ilfov	Bucureşti	Integrated automa-tion systems	Yes	SIS-AUTOM-INT-POL Bucha-rest
37	RO32	Bucuresti-Ilfov	Bucureşti	Furniture, creative industries	No	Bucharest Furniture De-sign Cluster
38	RO41	Sud-Vest Oltenia	Craiova	IT	No	ICT –Regional Competitivenes s Pole Oltenia Cluster
39	RO41	Sud-Vest Oltenia	Craiova	Tourism	No	Tourism Ol-tenia Cluster
40	RO41	Sud-Vest Oltenia	Craiova	Automotive	No	Automotive Sud Vest Ol-tenia Pole
41	RO41	Sud-Vest Oltenia	Craiova	Agriculture	No	AGROPRO Oltenia Cluster
42	RO41	Sud-Vest Oltenia	Craiova	Building	Yes	Construct Cluster Oltenia
43	RO41	Sud-Vest Oltenia	Drobeta Turnu Severin	Tourism	No	TURINN Cluster
44	RO42	Vest	Arad	Agrofood	No	Agro-Food Regional Cluster
45	RO42	Vest	Timişoara	Automotive	Yes	AUTOMOTIVES T Regional cluster
46	RO42	Vest	Timişoara	IT	No	ICT Regional Cluster
47	RO42	Vest	Timişoara	Renewable energy	No	ROSENC CLUSTER