# Content

# From the Editor

This new issue marks an important milestone for the South East Journal of Economics and Business. The response to the call for papers for the second issue in the second year of SEE was overwhelming. Encouraged to develop their own ideas, contributing scholars largely focused on the economic and business issues in the SEE region. We strongly believe that the quality of submitted papers will largely contribute to the prominence of this scholarly forum for researchers, theorists, teachers, and practitioners from the SEE countries and beyond.

The first article in our new issue is titled „Nation Building in Bosnia and Herzegovina: Cooperation, Coordination and Collaboration". In this very topical and imaginative contribution, Eric Martin analyses reform efforts in Bosnia and Herzegovina which may serve as the archetype model of conflict, transition and development for the 21st century. The author's deep analysis of the interorganisational complexity of development assistance and institutional arrangements shows that Bosnian development experience has much to offer by way of lessons learned.

Jalal El Ouardighi and Rabija Somun-Kapetanovic in „Do Balkan Countries Have a European Future: An Analysis of Real Economic Convergence, 1989-2005" compare the economic performance of Balkan countries to that of the EU over the period 1989-2005 and test the real convergence processes with three economic indicators: income, productivity and employment. They conclude that the development gap between the Balkans and the EU, which has widened considerably in the 1991-1993, has shown a sign of recovery since this date.

The third article titled „EU Market Access and Export Performance of Transition Countries" by Joze Damijan and Matija Rojec analyses the importance of EU market access for the upgrading of the export performance of the former socialist countries from Central, Eastern and South East European countries. Based on the empirical approach of Redding, Ven-

ables and Fugazza, they found that market access growth represents the main determinant of export growth for transition countries and that the importance of foreign market access growth for the export growth of transition countries is constantly increasing.

Nizamettin Bayyurt in „The Perfomance of Turkish Manufacturing Firms in Stable and Unstable Economic Periods" uses profitability, productivity, stock returns and growth indicators to evaluate the performance of Turkish manufacturing companies. The author concludes that, among these indicators, the most important ones are profitability and productivity for both economically stable and unstable times, the productivity being more important when economy is unstable.

Yannick Bineau in „Are Imports and Exports Cointegrated: The Case of Bulgaria between 1967 and 2004" investigates the past and the current account sustainability of Bulgaria, especially after 1997, when Bulgaria adopted the fixed exchange rate policy through the Currency Board Arrangement. The author concludes that recent evolutions of the current accounts related to the rise in domestic demand and that the failure of the export sectors increases the risks of inflation and proposes the modification of existing exchange rate parity.

Janez Prasnikar, Vesna Zabkar and Tanja Rajkovic in „Should Italians, Croats and Slovenes Work Together in Developing a Northern Adriatic Tourist Destination?" analyse opportunities for creating a macro-tourist destination in the region of the Northern Adriatic. Conducted research based on a survey of more than 1700 summer tourists in three different coast towns in Italy, Croatia and Slovenia, support the notion that the Northern Adriatic is considered by many central Europeans as the "sea closest to home" and that EU efforts under the framework of the Cohesion Policy of EU regions could be the main agent of change in the destination of tourists in the region.

In „The Adoption of Service Learning in Universities around The World", Stuart Umpleby and Gabriela Rakicevik analyse differences between US service learning system and the learning system in the countries of the former Soviet Union and Southeast Europe. The comparison between these two systems produces a list of obstacles to transferring US service learning system to other countries. The authors suggest some ways of minimizing these obstacles.

Itir Ozerl, Ibrahim Ozkan and Okan Aktan in „Optimum Currency Areas Theory: An Empirical Application to Turkey" test Turkey's position relative to European countries with respect to the optimum currency areas criteria, taking Germany as the center country. With the application of a new approach, their research shows that Turkey within the EU would be on the path to convergence in accordance with the OCA theory. One of the factors that plays an important role in this convergence is the young and dynamic population of Turkey.

Finally, Andraz Grum in „Measuring Market Risk for Commercial Banks in the Volatile Environment of an Emerging Market Economy" analyses the experience of Slovenian commercial banks for calculating capital charges for the market risks to which they are exposed. The author presents the methodology of volatility and time weighted historical simulation as an internal model for market risk measurement in Slovenian commercial banks.

The South East Journal of Economics and Business is open for cooperation with the authors from all over the world. We encourage scholars and practitioners to submit their works and research from all disciplines of economics and business. Our Call for Papers can be found at the end of the SSE issue.

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# Nation Building in Bosnia and Herzegovina : Cooperation, Coordination and Collaboration

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## Abstract

*Cross-sectoral interorganizational relationships in post-conflict situations occur regularly. Whether formal task forces, advisory groups or other ad hoc arrangements, these relations take place in chaotic and dangerous situations with urgent and turbulent political, economic and social environments. Furthermore, they typically involve a large number of players from many different nations, operating across sectors, and between multiple layers of bureaucracy and diplomacy. The organizational complexity staggers many participants and observers, as do the tasks they are charged with completing.*

*Reform efforts in Bosnia and Herzegovina starting in 1995 may serve as the archetype model of conflict, transition and development for the 21st century. It wins this honor due not to its particular programmatic successes and failures, rather to the interorganizational complexity of the International Community. From the massive response to the crisis, to the modern nation-building policies it spawned, and the development assistance practices and institutional arrangements it created, the Bosnian development experience has much to offer by way of lessons learned.*

*This manuscript frames the unique Bosnian development situation, and provides lessons learned from the experience of nation building given local realities. Pettigrew (1992) called this "contextualizing." While network and/or organizational structure, strategy and process explain many interorganizational relationship issues, the development variables identified in this manuscript prove equally important, yet elusive and difficult to measure despite their very real and overt presence.*

*Key words: International Development, Interorganizational Relationships, Bosnia and Herzegovina*

**JEL: O11, O19, O52**

## 1. Introduction

Much has been written about the need for development assistance organizations to better coordinate their activities, cooperate across sectors, plan for long-term stays in countries, and implement partnerships with locals to transfer knowledge over time. Much also has been made of the need for country-specific responses to crises. And finally, much has been made about the need for 'lessons learned' and 'best practices' pieces that can be used to compare nation building experiences. This article treads lightly between the three. Cross-sectoral interorganizational relationships in complex humanitarian emergencies (CHEs) or nation building efforts often take place in chaotic and dangerous situations with extreme urgency and a large num-

bers of players; in turbulent political, economic and social environments; and with multiple layers of bureaucracy and diplomacy, from many different nations.

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Bosnian nation building or reform efforts starting in 1995 may serve as the last great nation-building effort of the 20th century, and given developments to date in Kosovo, East Timor, Afghanistan, and Iraq, perhaps the archetype model of conflict, transition and development for the 21st century. It wins this honor due not to its particular successes and failures, rather to the interorganizational complexity of the International Community's response to the crisis, the modern nation-building policies it spawned and the development assistance practices and institutional arrangements it created.

In the pages that follow, I highlight opportunities and obstacles to cooperative, coordinated and collaborative development assistance efforts in Bosnia and Herzegovina (or BiH). While network and organizational structure, strategy and process explain many interorganizational relationship issues, the variables identified below can prove dramatically important at times, and yet remain surprisingly elusive to both observers and participants despite their very real and overt presence. Relationships do not take place in a vacuum. The influence of exogenous variables proves dramatic. Pettigrew (1992) called this "contextualizing." Solutions require that organizations with the capacity and incentive be willing to work together.

This work is based on extensive field experience in Bosnia and Herzegovina researching interdisciplinary task forces, networks, forums and groups of almost every conceivable combination of players across a variety of topics that cut across sectors. I explored the protection of journalists, privatization of state-owned enterprises, refugee return, regulation of media, economic development, harmonization of entity tax laws and legal reform. Research took place at a variety of levels; from high level donor conferences, and diplomatic efforts of the Peace Implementation Committee, to the various Sectoral Task Forces, each with their own lead organizations, to the more grassroots implementation level coordination bodies, ad hoc committees and advisory groups among country offices.

For this manuscript, I focus on the roles and actions of the key international community players that had a hand in several of the different task forces mentioned above. The key bilateral assistance agencies include USAID, GTZ, DFID, and the EU. The World Bank, IMF, EBRD, and dozens of NGOs and other implementing partners also played critical roles. My goal is to identify obstacles and opportunities for success in BiH that might inform similar nation-building difficulties in other settings. I do so through a qualitative analysis of task

force meetings and in-depth interviews with nearly 200 development professionals from 1999-2005 throughout the Balkans.

## 2. Background to Bosnian Development [1]

My research allowed me to become familiar not only with the work of these professionals, to know them personally as well, as the BiH expatriate community is rather tight-knit. Many development professionals, especially contractors, that I interviewed 'cut their teeth' in Central and Eastern Europe. They then moved over time to work in countries that seemed to follow the CEE model of transition and development (i.e. Poland, Czech Republic, Slovakia, Hungary, Lithuania, Estonia, Latvia, Romania, Bulgaria, and many Former Soviet States). These countries adopted broadly similar paths (perhaps because they were being implemented by the same international players) regarding traditional development coupled with the complex transition from central planning to free-market capitalism and democracy. Of course, locals, scholars and practitioners were keen to mention the importance of adapting larger models of change that were sensitive to local conditions in each country. Many worried about "cookie-cutter" models that were not specifically altered to fit local cultures, historical realities, circumstances, particular relationships with neighboring countries, etc.

According to my interviews, experiences and observations, many of these individuals found themselves in BiH by 1997 and 1998[2]. They were likely hired based on their extensive reform experiences in Central and Eastern Europe, but appeared shocked and troubled by the complexities of change and transition in Bosnia. The ethnic conflict in BiH added an additional obstacle to their work that many had not faced so overtly elsewhere. This complexity, not only as a task in and of itself, but as a mediating variable on other transition

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[1]   Overviews of the development situation in Bosnia and Herzegovina, as it progressed from conflict to post-conflict, transition and development can be found elsewhere. I need not repeat the story here. For clarity, and as a caveat to my overall orientation, I generally conform to the opinions of International Crisis Group and European Stability Initiative reports.

[2]   This was largely true of many contractors. It was less evident with career professionals in assistance agencies who seemed to have much broader experiences, having spent time throughout the world.

and development tasks, coupled with the very complex Dayton Peace Accords, which serve as the nation's constitution, made even the simplest of reforms very difficult.

The Office of the High Representative (OHR), Bosnia and Herzegovina's interim authority added an additional complexity. Unlike much of Central and Eastern Europe, reform in BiH could not initially take place within existing government and political channels, so the peace settlement mandated an outside authority to take control of events. This policy change dramatically altered working relationships between the various assistance arms of governments, multilateral institutions and NGOs. Military needs and peacekeeping operations by NATO and others added yet an additional layer of complexity to any reform measure.

Reformers reported that BiH was indeed a unique development situation quite unlike those found throughout CEE, even though the tasks and ultimate goals were largely similar. In other words, the context in which these reforms took place proved influential. So reformers in Bosnia and Herzegovina largely forged ahead into uncharted waters.

However, since the crisis in BiH, we have seen several similar situations where transition and development reform initiatives also required post-conflict measures. Kosovo, East Timor, Afghanistan and Iraq, among others, are all going through this threefold change. As such, a model has emerged where multiple players, from many countries, across the three sectors, must work together to solve problems that cannot be solved in a neat linear fashion and change rapidly over time. In the pages below, I explore and identify the complexity that development assistance players face in working together in such an environment.

# 3. Cooperation, Coordination and Collaboration in International Development: Literature

To understand the nation-building process, in Bosnia and Herzegovina or anywhere else, careful attention must be paid to those organizations designated to assist or control that change. In particular, attention must be paid to the relationships (at times peculiar, competitive or downright antagonistic) they have with each other. While interorganizational relationships are crucial to implementing reform and change, they are often wrought with difficulties, obstacles and confusion. However, these are the institutions of col-

laboration that help build nations and implement foreign policy. Success or failure of these groups has implications for reform success more generally. This study anchors itself to these interorganizational vehicles and explores development within the context of the IORs that implement development policy and translate high-level objectives into ground level action.

A solid body of work targets complex development cases and the interorganizational dynamics within. I paid particular attention to cases involving conflict, transition and development. Much has been written about BiH, particularly by the think tanks International Crisis Group and the European Stability Initiative[3]. These represent valuable sources for understanding progress and change over time by researchers with extensive experience on the ground. Research in Bosnia and Herzegovina also targets nation building efforts more generally (Talentino, 2002) as well as studies of the electoral process (Belloni, 2004), privatization (Donais, 2002; Martin, 2004), and the relationships among NGOs in the country (Martin and Miller, 2003). Huddleston (1999) provides a unique analysis of the constraints he observed as a consultant in Bosnia.

Examples from other settings proved equally informative such as Hill's (2001) discussion of East Timor's development challenges; several articles targeting El Salvador (Boyce, 1995a,b; Castillo, 2001), Francis' (2000) coverage of Sierra Leone, Roberts and Bradley's (2005) research in Afghanistan, Borton's (1995) summary of the Rwandan crisis and Ofstad's (2002) analysis of Sri Lanka[4]. The research reported here holds these works as exemplars in their efforts to balance an understanding of macro development policy challenges with grounded, field-level perspectives based on those implementing projects. Perhaps more importantly, these works also address the process through which the more macro policy desires trickle down to actual project results and coordination efforts, as well as the reverse, how grounded efforts resulted in large scale change.

More macro models of post-conflict development help shape understanding of national needs in terms of reconstruction and nation-building generally. Hamre and Sullivan (2002: p. 92) identified the four "pillars" of post-conflict reconstruction. Security refers to the development of

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[3]    See also, Knaus and Martin, 2003. Though ESI authors, this work came out in the Journal of Democracy.

[4]    See also Lammers (1988) for a unique but related case of the German occupation of Belgium, the Netherlands and Norway during the Second World War.

fair, legitimate and effective security institutions, as well as overall public safety. Justice and reconciliation refers to the need for an impartial and accountable legal system in addition to the ability to address past abuses. Social and economic well-being addresses emergency relief, health and education, and sustainable economic development. Finally, governance and participation refers to the institutions of government, public administration, transparent and accountable political activity and the development of a vibrant and engaged civil society. The question of strategy in implementing such reforms weighs heavily in this analysis and requires local leadership, international community support to leverage local advances, unity of effort, sequencing and planning of reform actions, and perseverance within what might be a longer timetable than some desire (Hamre and Sullivan, 2002).

The SCOPE model of Sustainable Communities in Post-conflict Environments (Hasic and Bhandari, 2002; Hasic 2006) provides another comprehensive and holistic overview of the complexity of conflict, the interconnectedness of issues and the dynamics of change over time. This model also puts forth a variety of priority needs areas.

- **Physical** – Rehabilitation of neighborhoods, regional planning, and infrastructure;

- **Economic** – Property rights, economic base, private sector development;

- **Social** – Cultural heritage, security and reconciliation, inclusion, civil society

- **Political** – Institutions and law, consensus, governance

- **Technological** – Knowledge and capital, R&D, infrastructure, and technology

- **Environmental** – protection, conservation, health, pollution, risk

- **Cultural – customs**, tradition, ethnicity, education, creativity, diversity

The line of research above frames the presentation of cross-sectoral and international task forces that address sector-specific action. I employ another set of research that more overtly targets interorganizational relationships and coordination mechanisms in development settings to potentially address such interdisciplinary needs in a strategic, cooperative, coordinated manner.

This set of work identifies important cross-sectoral, typically international, interorganizational processes as key variables in development. Scholars have explored networks that empowered women in Costa Rica (Vargas, 2002); preserved global biodiversity (Westley and Vrendenburg, 1997); implemented Madagascar's environmental action plan (Brinkerhoff, 1996); and supported refugees in the United Kingdom (Hardy and Phillips, 1998; Lawrence and Hardy, 1999). Pugh (2000) and Walker (1993) specifically target NGO-military relationships. Clark (1995) addressed civil society interventions and the important interplay between donors, NGOs and local stakeholders. These cases all had similar tensions between players, common rationales for cooperative action, and very real obstacles to achieving those ends. Written largely from an organizational or managerial perspective, these works are also complemented by studies of strategic thinking and management in development settings (Kiggundu, 1996; Goldsmith, 1996) and organizational learning in development institutions (Ellerman, 1999).

Another stream of work looks at the situation in a more reflective manner, illustrating inherent problems, and potential solutions. Lord Judd of Portea (1992) blasts the international community in his provocatively titled "Disaster Relief or Relief Disaster" for their failures, waste and inefficiencies, imploring stakeholders to work together more effectively. Others seek to categorize and codify trends and implications of current aid practices (Weiss, 2001; Maley, 2002; Griffin, 2000; Pritchett and Woolcock, 2004), all strongly suggest the need for more coordinated, strategic and effective networks for both policy development and subsequent interventions or implementations, despite overwhelming and very tangible obstacles to doing so.

A final line of research provides templates and models of effective coordination mechanisms. Roberts and Bradley (2005) set forth four key organizing forms that include the traditional 1) ad-hoc approach as well as 2) command and control or hierarchical efforts, 3) market based efforts where efficiencies might be found to partners' mutual benefit and 4) community approaches where the beneficiary seems the ultimate goal in more holistic efforts to simultaneously target multiple needs. Ricigliano (2003) proposes networks of effective action (NEAs) to identify how different players with varying needs and skills can work together (reminiscent of Roberts and Bradley's community approach). A variety of studies target the particular difficulties of cross-sector coordination efforts and relationships between donors, host country governments, bilateral assistance agencies, NGO

implementers, corporations and multilateral organizations (Brinkerhoff, D. 1999; Brinkerhoff, J. 2002; Brinkerhoff and Brinkerhoff, 2002a,b, 2004; Evans, 1996; Martin, Faerman and McCaffrey, 2006; Rondinelli and Black, 2000; Rondinelli and London, 2003).

In keeping with this niche of organizational, interorganizational and development literature, the study below attempts to provide an understanding of the context of development assistance in BiH, with an overview of the key players and their backgrounds, including institutional, organizational and managerial constraints. I frame this within the templates and models provided above, to specifically explore ground-level obstacles to the process of more coordinated, cooperative interorganizational relationships that address multiple, and at times, competing needs, in development settings, as observed and reported by professionals involved in such efforts.

## 4. Cooperative, Coordinated and Collaborative Institutions in Bosnia and Herzegovina

In this section, I introduce several different coordinating bodies and task forces operating in BiH to provide some understanding of the complex relationships in such settings, and to establish the cases from which I draw insight. They involve different players that target different activities. And they take place at different levels, with different types of participants, aims, goals and strategies. However, I find them remarkably similar regarding 1) The context within which they worked; 2) The organizations involved; and 3) The managerial issues they faced.

The Refugee Return & Reconstruction Task Force (RRTF) was established by the Peace Implementation Committee to coordinate donors and implementers working on a wide variety of refugee issues. The UNHCR (High Commission on Refugees) and the OHR co-chaired the RRTF, as mandated by the Peace Implementation Committee (PIC). Literally hundreds of NGOs and bilateral agencies participated in RRTF activities.

The International Council of Voluntary Agencies (ICVA) played an important coordinating role in the NGO community by organizing meetings and conferences, working to partner local NGOs with internationals and generally serving as an advocate for NGO positions. This group created

and then evolved into the NGO Council, yet another coordinating body, that gradually transformed itself from an internationally-led and dominated organization to a largely local one.

International activities in media were initially coordinated through Media Roundtable meetings, chaired by the OHR, which evolved into the Media Issues Group (MIG). The OHR was involved in media through its concern for human rights and its general coordination role, which makes it an important player in every sector. The OSCE targeted media based upon its concern with elections and democratization. The OHR-created Independent Media Commission (IMC) and Open Broadcast Network (OBN) were also important players, serving as BiH's telecommunication regulatory agency and public television station respectively. NATO was also involved in media, primarily concerned with frequency distribution, and instances where force was necessary to shut down illegal broadcasters.

The International Advisory Group on Privatization (IAGP) served as an important task force, modeled after the IAG on Payment Bureau Reform, and serving as the model for the IAG on Tax Harmonization. IAGP member organizations implemented privatization-related reforms on behalf of the PIC; though each had seemingly distinct mandates, objectives, skills and resources. Many participants and observers suggest this task force was one of the best examples of coordinated cooperative international activity.

Finally, the Bulldozer Committee was launched in the end of 2002. It stemmed from a speech made by the then High Representative, Paddy Ashdown, who stressed that business people needed to help the country "bulldoze" pointless regulations and red tape that made it harder for companies to create jobs and prosperity (NY Times, 10/28/03). The OHR pushed this initiative, backing it with press and fanfare. They sponsored meetings across the country to bring together business leaders, explain the program to them, and ask for their input about regulations that prevent growth and good business. International players helped insure that any proposed changes conformed to other reforms and didn't cause any additional regulatory concerns. They also helped push reforms through local government channels.

As if these groups weren't complex enough, efforts were also made through informal arrangements at the implementation level, as well as much more formal diplomatic channels at higher levels such as donor conferences, to harmonize

activity not just within each of these individual task forces, but between them to insure the overarching nation building efforts would be achieved and sustained. For example, to return refugees to their homes required rebuilding, but also required the need for employment, which relied upon economic development, privatization and legal reform. Nation building is indeed a serious and complex undertaking.

## 5. Methods

This paper stems from research conducted over the course of five field trips, based in Sarajevo, the capital of Bosnia and Herzegovina, from 1999-2005 for a total of eight months in the country. In all, 182 senior executives, diplomats, mid- and upper-level managers, staff and consultants from over 30 national, international and multinational organizations were interviewed. Interview lengths ranged from 20 minutes to over 4 hours, with some key individuals being interviewed several times. Several individuals were interviewed annually, providing an excellent perspective regarding change over time. In other situations, personnel changed, thus permitting interviews of different individuals serving the same role in the same organization at different times. Over fifty hours of interviews were tape recorded, transcribed and coded. The rest were reproduced using detailed notes as soon after the interview as possible. In addition, many informal interviews also took place over dinners, lunches and other social events. These informal conversations served to bolster subsequent lines of questioning. I also attended many conferences and task force meetings across the sectors.

Many of the same players (organizational and/or individual) tended to reappear over the course of the field research effort, suggesting that the group of individuals interviewed represented the core organizations involved in development efforts. In addition, interviewees were asked to comment on other major players in their field. Those leads were followed up wherever possible, confirming balance and saturation. Interviews with more peripheral or niche players proved equally rewarding, and balanced the sample in many respects.

Table 1 provides a synopsis of the organizations represented in this research (i.e. representatives interviewed), according to the various task forces with which they were involved and/or about which they commented during interviews. Several organizations appear in multiple task forces. The

individuals representing those organizations in different sector-specific activities, however, were different in most, if not all cases.

| Refugee Return Task Force (RRTF) |
|---|
| · Lead: Office of the High Representative |
| · Lead: United Nations High Commission on Refugees(UNHCR) |
| · American Refugee Committee |
| · CARE |
| · Catholic Relief Services |
| · International Committee of the Red Cross |
| · International Rescue Committee |
| · Oxfam |
| · Soros Foundation |
| · World Conference on Religion and Peace |
| · United Methodist Committee on Relief |
| · World Vision |
| · Bilaterals: USAID; EU; DFID; GTZ |
| · International Council on Voluntary Agencies (ICVA) and NGO Council |

| Media Issues Group (MIG) |
|---|
| · Lead: Office of the High Representative |
| · Lead: Organization for Security and Cooperation in Europe |
| · Independent Media Commission |
| · Open Broadcast Network (OBN) |
| · North American Treaty Organization (NATO) – Stabilization Force – CIMIC (SFOR) |
| · Bilaterals: USAID; US Office of Public Affairs (USIS); EU |
| · Contractors: IREX ProMedia; Internews |

| International Advisory Group on Privatization (IAGP) |
|---|
| · Lead: US Agency for International Development (AID) |
| · Lead: Office of the High Representative |
| · World Bank |
| · European Bank for Reconstruction and Development |
| · International Monetary Fund |
| · International Finance Commission |
| · Bilaterals: EU, DFID, GTZ |

**Table 1.**
Representatives interviewed, by task force

## 6. Opportunities for Cooperative, Coordinated and Collaborative Action

Nearly all professionals in all the groups expressed some desire – the relative weight of that desire varied, but a desire nonetheless – to improve their interactions with other organizations. The rationale was almost unanimous. They worked together to improve the overall effectiveness of the work of the entire international community. Few overtly spoke of the desire to use these groups to enhance only their own organization's work. Beneficiaries were their overarching concern. The professionals I interviewed were able to spot gaps in service, inadequacies in programs and oversights in planning. They were aware that no one could consider everything and they were all constrained whether due to poor staffing, budget issues, politics or interpersonal problems. Some saw improvements in relationships between organizations as a catchall – a band-aid and a panacea. Others were more pragmatic, if not skeptical.

The following motivations for coordinated activity seemed to emerge from those with whom I spoke. Table 2 provides

a summary of the findings.

*Providing a Forum*. Many stressed the need to simply provide a forum where those working in the sector could meet and discuss issues. Overwhelmingly, respondents suggested that the major motivator for improving cooperative action through such forums was diminishing funds. Essentially, they were forced to do more with fewer resources and thus sought external support.

We are cooperating a lot more the smaller we get, I've been noticing that in the last 5 months, as we draw down everybody else draws down, and there is so much more cooperation now. When you are expanding you are much more aggressive. Now that people are going down a little bit, there is less of that aggressiveness.

Most participant responses regarding information exchange, sharing of best practices, and learning about the activities of other organizations, problems and successes were coded into this category.

*Identifying Niches and Overlap.* Avoiding overlap and duplication was perhaps the most salient motivator, since most NGOs, for example, were grant-based and could not afford to waste donor money on projects that competed with others. Donors mentioned their desire not to see their money used to cancel itself out, but rather used to find synergies. One NGO director mentioned, "Obviously a donor doesn't want us to establish an information center right next to where another donor does."

One of the reasons why it is good to get people together is to avoid duplication. Donors would have an interest in not having money duplicated, either in the same areas of work or in the same physical regions. Some donors now insist that people get together and share, but they could do more in actually making that happen.

With this effort to avoid duplication and to identify areas that would easily be funded by donors, many NGOs looked to find niches in which they could specialize. Once known for a particular activity or area, NGOs could better identify potential partners. However, as more NGOs found niches, coordination became even more important to insure that gaps were not missed. "Where agencies are growing and they're willing to address different sector problems, they kind of divide off, then coordination becomes crucial." Into this category I coded concerns regarding efficiency as the primary motivator for coordinated activity; the need to achieve more with less, to better assist their beneficiaries.

*Strength in Numbers.* Most participants felt strongly that cooperative action could strengthen their collective positions through an advocacy role. This was an important motivator, not only in terms of more effectively addressing tasks, but also in improving the collective perceptions of NGOs within the international community.

ICVA does that a lot, they sort of act as a voice for all of us as a group so that none of us have to go out on a limb alone. I'm not going to hang out here and get shot by myself, but ICVA does it in the name of the NGO community.

While I found agreement on a relatively small number of common motivators for collective action, I found more disagreement, and a great many more concerns that seemed to present obstacles to coordinated activity. I coded these under three large themes concerning contextual concerns, organizational issues, and managerial problems.

## 7a. Obstacles to Cooperative Action

*Obstruction.* One local commented, "To have peace you have to have a winner, I think that is a general philosophical point. Here there is no clear winner so you cannot really have peace." This, coupled with inconsistencies in the Dayton accords themselves, ("on one side it upholds a multi-ethnic Bosnia but at same time, it cements in ethnic conflict and divisions.") complicated the task of refugee return and reconstruction. The Bosnians often did not share the IC's goals and objectives.

As a result, locals obstructed many specific reform efforts. In addition, locals felt somewhat powerless over their own government, which was propped up at the highest levels by the international community through SFOR and OHR. Where the Bosnian government did act independently, the three-way ethnic divisions hampered agreement and forced the internationals into the role of constant arbitrator. One bilateral official commented that, "they can't even sit in the same room together." In addition, corrupt and nationalist politicians, some indicted on war crimes, often held great power, having been legitimized by the 1996 elections. Locals, as such, often bargained with development organizations regarding implementation of reform efforts.

There is this whole dance. It's a vicious circle. Local officials are not empowered so donors don't use them and donors don't use them because they continue to show themselves as incompetent.

*Dramatic funding drop.* The massive reduction in funding served to alter early activity and also provide an impetus to coordinate actions more thoroughly. Many suggested that the overall funding was in fact too large in the beginning, especially compared to assistance efforts in other parts of the world. The NGOs especially felt funding was not only too large, but also too focused on short-term results. Many organizations saw major cuts by 1999 and 2000 that had significant effects on their operations.

Geneva will mandate our funding down further and further so that eventually everyone will leave. We can certainly see the immediate effect of this. With the 50% cut, we can only do half what we did.

We're phasing out because of donor burnout, as much as anything else. USAID is not going to fund us for a fifth year. There is going to be no more emergency feeding after this month.

The drop in funding was partially due to the end of the Priority Reconstruction Project, the major source of funds in refugee return and reconstruction. However, the crisis in Kosovo also diverted donor attention. One worker suggested, "the way Bosnia now factors on the world stage, it is of much lower significance, there's no war anymore."

We saw Kosovo taking a front seat to Bosnia last year, which is a normal thing. The amount of money that they are willing to give us is decreasing. Everybody has scaled down or they have gone to Kosovo or their resources are redistributed.

*Changes in tasks and priorities*. By 2000, most NGOs and bilaterals focused on emergency or humanitarian post-conflict work recognized that it was time to leave Bosnia. The tasks and needs in Bosnia had changed to more traditional development and transition concerns. Far fewer organizations are involved in development than emergency relief. As a result, donors changed their priorities, which altered NGO activity. In some cases, NGOs changed their missions to adapt to the new demands. However, many commented that donors seemed to change based on political whims and unsound criteria to improve the situation on the ground.

There are certainly flashes of enthusiasm for areas. For example, in 97 or 98 Western Srpska was the sexy area and we did a spearhead return to that area with ARC. Within a few months there was money being flooded at us. Donors were coming up to us saying literally, we have $3 million. Can you do the same for us as you did for EC? And then 6 months later there was a new sexy area. Well what about the other place? Well forget about that, they said. And that is exactly what happened.

## 7b. Organizational Obstacles to Cooperative, Coordinated and Collaborative Action

*Competition and overlap* were also reported among the NGOs themselves. Many recognized that it was a problem, fueled by the nature of funding and the fact that there was no clear direction or leadership in the sector.

In other places I've worked there has been this subculture of NGOs not stepping on each other's turf. It's an informal thing. Usually we don't talk about those things when talking to our donors. But among ourselves we have that unspoken agreement. Here it is not so much that way. It's a bit more competitive.

Although some mentioned the lack of skills or vision necessary to coordinate action on the part of NGO directors or representatives, many more commented on the costs of coordinating activity. Implementers had more difficulty supporting such activities because they had to justify all their activities according to line items in their budgets. As one NGO director suggested, "It is hard to be devising a plan that will save millions. It is what is needed, something more sophisticated like that. But that is hard to sell to donors." Coordination was expected as an additional activity, and yet NGOs were too understaffed to simply add this function to their activities. Many commented on the time it takes to travel to and from meetings, given the poor roads, complaining that a meeting in nearby Mostar would take an entire day for someone in Sarajevo to attend. Others mentioned the impossibility of attending all the meetings they would like to while still keeping current with their own daily activities and management.

Coordination is often difficult because it's not just something you sort of fit in along with every thing else. You have to identify time within your agency to find the resources to do it. Someone has to find the time to go to meetings.

*Mission creep.* Perhaps of greater importance in influencing the relationships between the NGOs - both local and international - and the IC were complaints about the rapid growth and decline of an enormous number of NGOs. Many noted that the majority of NGOs only arrived in response to the massive funding available. One contractor suggested that "so much money here so quickly, attracted a lot of folks." As a result of the massive growth in interest and the number of players on the ground, "a lot of international NGOs are running around doing the same thing and bit of competition has crept in." [Bilateral official] In response to this competition, the NGO community was criticized for mission creep, NGOs were reported to "do anything for a buck."

NGOs are like prostitutes. They will do anything for money. There was a lot of money for reconstruction, and even if they had never done it before, they were applying for money. And were did they learn about this? Nowhere! If you are in reconciliation or food distribution, maybe you should stay out of reconstruction.

Broadly accusing NGOs of mission creep seemed unfair, however, since they were responding to changing needs on the ground and the changing directions for international funding. In other words, donors largely dictated NGO activity. One worker commented, "NGOs don't have a lot of freedom to follow or define agendas unless they have an independent source of funding. Most NGOs are dependent on donor priorities."

*Timing.* NGOs also criticized the donor community. Complaints centered on the politics of donor funding and their need to target high-visibility, high-impact and highly quantifiable short-term projects, rather than more important long-term efforts, which were less glamorous and less tangible. One NGO director commented that "donors look at short-term prospects and 12 months later they move to a new place." Another suggested "donors only give money if it's about return and if there is a good chance it will be quantifiable … since the need to show success by the donors drives the whole thing." And of course, many commented on the difference between donors. One official commented, "The American style is often very pushing and very effective. The EU style is different. It is the school you learned from, different management styles, different approaches to solving problems."

*Experience.* Many NGOs came with little or no experience in refugee return and reconstruction. However, over time,

and supported by grants, they expanded their operations. As grants ended, they sought alternative income sources to support their overhead.

They build up a huge structure for a particular job. When that job is finished, however, they don't want to let people go, especially not the expats. You need to find a justification for them so you propose to do something else.

As a result, the nature of employment and need for different skill sets changed over time. "You don't need logistical people or emergency people now, you need more strategy and planning people." Another professional provided a counter-point:

It's getting worse and worse, the people who were here in the beginning were here to actually rebuild the country and to help the beneficiaries. Then on and on came more long-term people and strategic people who think about strategies and development. We come with 3-6 month contracts. They come with 1-2 year contracts and if they have no brilliant idea today, then they sit there until someone says they have to justify their existence.

But recognition of failed projects, difficulties and ineffective cooperative and coordinated action provided the greatest impetus to want better coordination. Donors and implementers simply began to realize that they were wasting money and not being as effective as they could be.

*Organizational Culture.* The expatriates who work in this sector are unique. With the exception of some bilateral and multilateral program managers, they are not aspiring diplomats. They work in the development world at low pay, under extreme conditions, on the front line of action, often in danger of great physical harm.

You get a lot of really bizarre people who do this; people who would be much better off in the French Foreign Legion. A lot of people drink too much. A lot of people have other drug problems. A lot of people are running away from all kinds of problems; problems at home, family problems, sexual problems. And they're all just a little bit crazy to begin with, and that definitely colors everybody's actions and perceptions of each other.

The volunteer nature and ground level intensity of action of volunteers tends to provide the biggest draw. One NGO volunteer who came during the war mentioned "I joined with 10 people, all who have never been here before. Some dropped out, some died." It is dangerous and exciting, and

often these people move from crisis to crisis, traveling the world for new and different experiences. One worker explained, "People who are volunteers tend to stick in the field, on the sharp end, actually helping people." More importantly, local players are burdened with memories of the all too recent conflict – and limited resources to devote to development.

# 7c. Managerial Obstacles to Cooperative, Coordinated and Collaborative Action

*Pay.* The pay differences across the sectors – and between locals and internationals – created problems for individuals who were often bitter about counterparts that earned far more than they did for what they considered to be the same job. Others mentioned constraints for NGOs because they are unable to compete with the wealthier multilaterals and bilaterals, and therefore had a harder time hiring quality employees.

The nationals get much less. So it is hard to attract quality people with that. So you end up getting really young people with no experience, really old people, retired, or people who don't know what they are doing and you really wouldn't want to hire them normally.

You get what you pay for and if you are only going to pay people a certain amount then you are only gonna get people of a certain caliber and that's just begging for mistakes to be made. You will not find good business people here unless there are financial incentives at least equivalent to what they are doing currently.

The good people tend to get sucked up by World Bank, OHR, OSCE, UN and so forth. We can't compete. A donor will pay a driver a monthly wage of 1500 DM but when they give us money they say we can't pay our top local professor more than 400 DM.

*Skills and Experience.* Though often overcompensated for in terms of energy and commitment, skills and experience represent the biggest deficits in the NGOs. It is crucial to have some field experience working under such extreme conditions to be effective, especially experience in the Balkans. However, many others stressed that management skills are even more necessary; "People who are actually defining the skills that they are looking for are probably not qualified to actually make that definition anyway. It's the blind leading the blind."

*Turnover* presents a serious problem in this environment with strenuous conditions and low pay. There is a lot of burnout with NGOs who constantly seem to be looking for better employment. NGO workers typically have contracts that are dependent upon funding. They are offered few benefits, and no long-term security. As one low-paid NGO worker suggested, "If you are going to treat us like that, we're gonna leave." The turnover created problems with projects since the local authorities "learned that they can just wait few months and someone will leave and the new person will not have this institutional memory of what happened five years ago." As a result, many NGO workers spoke of the informal networking and recruitment that took place regularly.

You always network. A lot of people in this development world do. If you find a better paid job, then you jump, not all of us, but of course, the normal step is you come in a NGO after a while you try to find your way into OSCE or OHR or the World Bank.

You get headhunted a lot in this business, ARC just called me up. I turned them down, but if I had no sense of job security I would have been interested. That could be helped if donors took a longer perspective.

*Frustration, Autonomy and Apathy.* Perhaps the more dominant feeling among those in the refugee return and reconstruction sector was that they could not coordinate activity or improve cooperation since they had limited control over the activities of others. As such, many seemed apathetic about the situation, although they realized its enormous influence on their activities.

I can't tell CRS that they should do self-help. It's not my business. They are the ones that make their decisions and I can't tell them how to meet their objectives.

If you try to over coordinate it's not going to be that useful. You just sort of let it all happen; let the marketplace take its course. There will be bumps, but in the end it all works out. That is what has been happening here, the market in a sense.

As a result, a cooperative atmosphere simply did not exist. As one NGO director commented regarding a plan to coordinate more effectively, "Most people react against this with the fear that they are being coordinated." The NGOs

were skeptical of coordination mechanisms that seemed to dictate what they should be doing.

These people won't come together. None of them tell the truth when it comes to particular political matters. They have these big high meetings where they bring everyone together four times a year, but they should be meeting twice a week.

Some donors were often criticized for acting autonomously, especially USAID. These negative comments, however, served to plant the initial seeds for cooperative action down the road. In addition, all stressed the overall necessity of USAID and often, of its approach. Recognizing these differences in style and form, many wished that there was one overall leader who could simply coordinate activity. However, they said so in an idealistic manner, usually following this by saying that that would be impossible due to the disparate nature of mandates and funding sources. A worker commented, "If it got better it would only get better if there was maybe just one person lending out money and one humanitarian aid person doing everything, but that goes against the whole system." It was odd, however, how many people commented on this, especially given the fact that the OHR's role was essentially overall coordination

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**Refugee Return Task Force (RRTF)**

· Lead: Office of the High Representative
· Lead: United Nations High Commission on Refugees(UNHCR)
· American Refugee Committee
· CARE
· Catholic Relief Services
· International Committee of the Red Cross
· International Rescue Committee
· Oxfam
· Soros Foundation
· World Conference on Religion and Peace
· United Methodist Committee on Relief
· World Vision
· Bilaterals: USAID; EU; DFID; GTZ
· International Council on Voluntary Agencies (ICVA) and NGO Council

**Media Issues Group (MIG)**

· Lead: Office of the High Representative
· Lead: Organization for Security and Cooperation in Europe
· Independent Media Commission
· Open Broadcast Network (OBN)
· North American Treaty Organization (NATO) –
  Stabilization Force – CIMIC (SFOR)
· Bilaterals: USAID; US Office of Public Affairs (USIS); EU
· Contractors: IREX ProMedia; Internews

**International Advisory Group on Privatization (IAGP)**

· Lead: US Agency for International Development (AID)
· Lead: Office of the High Representative
· World Bank
· European Bank for Reconstruction and Development
· International Monetary Fund
· International Finance Commission
· Bilaterals: EU, DFID, GTZ

**Table 1.**
Representatives interviewed, by task force

## 8. Discussion

Organizational management provides a helpful practical lens as foreign assistance dollars are increasingly being implemented by task forces and networks, i.e. 'development by committee' (Martin, 2006). Sharing knowledge about best practices and cooperative experiences can hopefully help practitioners move beyond 'redeveloping wheels' in each new country they target by sharing best practices in programmatic activity (which is often done), as well as interorganizational, organizational, administrative or implementation level 'best practices' (less frequently accomplished). Scholars would provide a service by cataloging these experiences. Practitioners would also do well to share their experiences and determine when coordinated activity was in fact helpful and successful and when it simply served as a vehicle for donors and funders to feel as though work were more coordinated – without actual implications on the ground.

Donors often require coordinated activity, and yet are often blamed for establishing reporting requirements, funding schedules and activities that defy coordinated action. Such a dialog between donors and implementers must take place to insure effective action. It is my assertion that many obstacles to effective reform efforts lie not in the actual circumstances and dilemmas of development. Rather, they lie in the contextual, organizational and managerial dilemmas of 'development by committee' where external politics, international funding, organizational mandates, administrative procedures, organizational cultures and institutional logics tend to obscure potentially successful collaborative implementation mechanisms.

In order to solidify the lessons learned and apply them to the Bosnian experience in the future, as well as to potentially apply them to other countries going through similar situations, several key issues might be explored in more depth. Below I identify some areas for discussion, in which some solutions to the obstacles discussed above might be found.

***a. Build Cross-sectoral Trust and Legitimacy.*** To achieve the goals mentioned above, NGOs must gain greater trust, respectability and perceived accountability to market their services to donors, both local and international, as well as peers, partners, constituents, and clients. Doing so requires investment in institutional strengthening efforts, public relations work, education, training and policy and political participation, but the sector is facing an increasing need

to be seen as more responsible, accountable partners, and donors should allow funds for NGOs to do so. In addition, all players must recognize the strengths and limitations of organizations in each of the sectors, both locally and internationally, on a more institutional basis.

**b. Legitimize Mission Creep.** Development organizations have been accused, perhaps unfairly, of extraordinary mission creep; a devolution of activity away from their original mission and, likely, their core competencies. However, BiH went through enormous changes in the last decade so we might expect the organizations serving that population to evolve as well. Stability, niche identification, and coordinated – not necessarily collaborative – action can accommodate mission creep. As long as organizations are part of a coordinated system, funders concerns over overlap and waste will be minimized. The actions of individual players could vary within such a system. The negative stigma associated with mission creep should be tempered. Private sector firms who do this are thought to be adaptive and innovative. Perhaps the same courtesy could be extended to NGOs.

**c. Strengthen Institutional Strengthening.** Development organizations must take time to recharge their organizations and 'professionalize' as best as possible. This requires higher salaries, lower turnover, educational opportunities, and a targeted effort to train and develop lower level volunteers and staff. Skills necessary include finance, information technology, marketing, management, strategy, operations, and human resource management. Donors might encourage NGOs to invest in themselves and the processes through which they deliver results rather than being so preoccupied with only the accomplishment of tasks – an understandably difficult trade-off.

**d. Self-regulate.** Development organizations across the spectrum have been accused of waste and inefficiencies. The international donors are as much to blame for this as the NGOs and development institutions themselves. This should be addressed locally, taking important issues to locally based (whether international or local players) networks and allowing them to develop a voice. That collective voice, however, has many subsets and the re-organization of the entire industry might evolve simultaneously. Regardless, players in development work need to be sure that in identifying task failures and less effective organizations, they do not throw out the proverbial baby with the bathwater. The development of common standards, assessment tools and best practice guides would help.

**e. Get to "Post-Post Conflict".** Bosnia had been burdened with the post-conflict tag for thirteen years. While that allows access to some specific sources of funding and support, practitioners need to reposition their work when they believe they are 'POST-post-conflict.' Doing so requires a coordinated, cross-sectoral effort to communicate when the country has indeed moved to a new phase in its development. It seems odd, for example, that during my travels to Bosnia, professionals were receiving danger pay, especially compared to truly dangerous settings like Iraq. This creates a negative impression that may be counterproductive. It also serves to increase pay and salary, which may not be completely justified in more highly desirable expatriate placements.

**f. Operationalize Civil Society Building.** Civil society is an enormous and overused catchphrase. The term serves as both a major funding avenue in and of itself, as well as a required component or condition of many varied sources of support. Local development institutions and particularly NGOs and local bilateral missions must embrace the concept and inculcate it into their missions. It is the core of their existence and thus should be more measurable in terms of memberships, donations, political influence, etc. as a potential indicator of local ownership – an important buzzword in development circles. By recognizing that civil society development is critical to all the reform efforts mentioned above, and indicating how it is being addressed in each, this misunderstood and vaguely described concept in development might become more commonly understood.

**g. Encourage Ownership.** A key concept in development circles is that of creating a demand for locals to 'own' their reform efforts. As such, some see projects such as the Bulldozer Committee as a classic example of local ownership since local business people suggested the reforms. Others counter that the International Community and the OHR were the real backbones of this initiative and it is not local at all, rather the locals are being used by the Internationals to make it seem as though this were a bottom-up charge. Regardless, efforts must be made to pass the torch on to locals from the very beginning. While this long process involves a great deal of mentoring at a time of great stress and urgency early in any intervention, it is time perhaps ultimately well spent.

**h. Avoid Moral hazard.** The theory goes that the more the international community does, the less locals need to do. As such, in an effort to turn things over to the locals, the IC should be more hands-off and not try to push through

reforms, as the reform itself is not the key outcome. In situations like Bosnia, this remains an empirical question, which must rely on the interpretations of local officials as much as internationals. As such, politicians and observers need to be more patient with some reform efforts and need to carefully choose which projects are so 'critical' that they necessitate bypassing local decision makers. The test should be a strict one.

· Build Cross-Sectoral Trust and Legitimacy
· Legitimize Mission Creep
· Strengthen Institutional Strengthening
· Self-Regulate
· Get to "Post-Post Conflict"
· Operationalize Civil Society Building
· Encourage Ownership
· Avoid Moral Hazard

**Table 3.**
Strategic Directions to Overcome Obstacles

## 9. Conclusions

This paper serves to identify lessons learned from the International Community's experiences in BiH. Many of these insights address the need for even more cooperative, coordinated and collaborative activity – for purely pragmatic reasons, not simply political correctness. The tasks at hand in such situations are so overwhelming that vehicles need to emerge that can handle large scale, complex problems through strategic, systematic approaches that cannot be unilateral – if only for the sheer size and scope, let alone relative appreciation for core competencies and political leverage that certain players might have.

The task forces above were created for this reason and all participants would certainly recognize improvements could be made. These professionals would also stress, however, that improvements require primarily increased time to develop trust, understanding, mutual respect and legitimacy. Such 'time' often doesn't exist in complex humanitarian emergencies and potentially explosive nation building activities where immediate action is required. Cooperation cannot be mandated, it develops between people. Coordination and collaboration, can, of course, be mandated, but without cooperation, more embedded relational forms lack the foundation necessary for success.

The international community served as the major focus of this piece. It is hoped that readers recognize this only as the perspective through which this research took place, in a descriptive, positive fashion. It is not meant to imply that the international community is the sole or even primary actor. The principle of ownership weighed heavily in most in-terviews. Local ownership, participation and commitment remain at the forefront of development success. As such, the question of dependency surfaced often.

Through inclusion, the benefits of international action should offset the long-term negative effects of dependency, though this remains to be tested. Inclusion materializes through interorganizational relationships between the international community and host country players that foster increased ties and embeddedness. Table 2 summarizes the results of my exploration into some of these 'inclusive' vehicles.

Respondents suggested overwhelmingly that the key motivators for collective action included the ability to provide a forum to discuss lessons learned and best practices. In addition, such cooperative activity fosters the identification of niches and areas of overlap. Solutions typically require coordinated activity. Finally, a principal motivator to work together included the ability to speak in one voice and develop common advocacy positions. This implies collaborative activity on the part of participants.

A hierarchy of collective activity emerged in through this work. Effective collective action requires cooperation, coordinated action, and collaborative activity – in that order. These stages of collective action require increasing embeddedness and ties between stakeholders, as they move from initial cooperative activity in terms of sharing and receptiveness to outside input; to coordinated activity that requires discussion of current and future organizational strategies and the desire to find synergies and coordinate responses; to collaboration, which requires internal change to organizational activity, as a result of strong partnerships and trust.

The obstacles to such cooperative, coordinated and collaborative collective action identified in this research are well documented in the development literature. Local obstruction to reforms, dramatic funding swings and overall priority changes serve as contextual obstacles that lie outside the control of most organizational players. Organizational obstacles, such as competition, mission creep, time perspectives, experience and culture can be internalized by organizations committed to success. Managerial obstacles include pay discrepancies between host country nationals and expatriates, employee skills and experience, turnover and apathy. While both managerial and organizational obstacles can be solved, doing so requires resources. And these resources potentially take away from those devoted

to task completion– a difficult tradeoff to make.

Table 3 suggests that many of the potential solutions to these obstacles do not, however, require extensive resources. Instead, they require cultural shifts among participants. Trust and legitimacy, encouraging ownership, and avoiding moral hazards all take time, but do not necessarily translate into increased direct costs. In addition, legitimizing mission creep requires no financial support. Mission creep is seen as one of the "deadly sins" in the nonprofit world. However, in circumstances where change is so dramatic in such short time horizons, mission creep might not be as negative as many suggest.

Institutional strengthening and operationalizing civil society does, indeed, cost money. Resources should be spent in these two areas, demonstrating a long-term commitment to change and development in terms of positioning and assessment that might potentially mitigate the concerns of dependency. If local institutions are prepared to handle tasks, and these tasks are well identified, operationalized and measurable, perhaps more local ownership of reforms would result.

This article might prove useful to several audiences. First, for those who explore and research international development assistance, it reiterates the influence of the local environment on coordinated activity among and between the many players on the ground. As recent experiences in Kosovo, Afghanistan, East Timor and Iraq demonstrate, the international community increasingly supports interventions that attempt to speed up the development process by tackling multiple goals simultaneously. While this may be an efficient use of time in a world pre-occupied with the speed of reform, it creates complexities on the ground that may actually decrease efficiency and effectiveness.

For those actually engaged in coordination efforts, task forces, or even lead organizations, the research reported above might assist  developing strategies for overcoming obvious obstacles to success. Recently, the UN created its peacebuilding agency as a potential lead organization designed to oversee such complex humanitarian crises. My research demonstrates that unless this organization can overcome the obstacles mentioned above, it is doomed to further complicate matters by simply becoming yet another agency with coordination needs and fears. The OHR in BiH was created in part to serve as such a coordinating body. Coordination without hierarchy seems to be the general consensus for success. A UN agency, however, seems

likely to be a bureaucratic command and control oriented organization that will also likely take a lot of blame for situations beyond its control. It is one of several approaches to the coordination issue. However, if they are to succeed in such a role, they must gain the legitimacy and power necessary – which means budgetary power. Without it, success seems unlikely.

For practitioners, this work might help identify obstacles to projects that were perhaps outside of their responsibilities. More attention should be paid by donors and contractors to specifically identifying solutions, and crafting contracts to reflect the actual process and means to achieving success, rather than being largely based on end results. For example, a recent call for proposals in Iraq promises some potentially interesting material for study. The call was not for project- or sector-specific activity. Rather it asked applicants to propose addressing all of the needs of one area, thus being geographically based. Perhaps coordination efforts under the regional control of one lead agency or contractor might prove more successful than those between lead agencies on different intertwined efforts across geographic regions.

Finally, for those who study interorganizational relationships, this case raises the need for careful attention to complex settings like Bosnia where external control and variables subvert the best intentions of potential partners. This raises interesting theoretical insights into the structure, strategy and process of IORs and the true determinants of their success, with careful consideration and respect to the environment or context within which they operate. Much of the mainstream IOR literature is based upon private sector studies in developed nations, essentially controlling for context. IOR research in areas where the environment is clearly 'uncontrollable' might prove useful.

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# Do Balkan Countries Have a European Future? An Analysis of Real Economic Convergence, 1989-2005

Jalal El Ouardighi , Rabija Somun-Kapetanovic

## Abstract

*The purpose of this paper is to assess the economic performance of Balkan countries compared to the European Union over the period 1989-2005. We use three economic indicators of income, productivity and employment. The analysis rests on the test of the real convergence process of these indicators. The results show evidence of real convergence (i.e., convergence hypothesis and reduction of inequalities) of labour productivity in Balkans, but they are mixed for income per capita and employment rate. The development gap between the Balkans and the European Union, which has widened considerably in the 1991-1993 period, shows a sign of recovery after this date. However, the gap remains very deep and the process of catching up with the European Union is too slow.*

*Key words: Convergence, Balkan Countries, Statistical Framework*

**JEL : C23, O40, O52**

## 1. Introduction

The difficult question of a European future for the five countries in the Balkans (Albania, Bosnia-Herzegovina, Croatia, Macedonia and Serbia-Montenegro) has lately received more attention from the European commission (e.g., Thessaloniki and Brussels reunions, 2003). There is considerable consensus that the future of Balkan countries is in the European Union (EU). In order to prepare for their accession to the EU, the process of "stabilization and association" constitutes the principal instrument of the European policies with respect to these countries. In fact, the European future of the Western Balkan countries relies on their capacity to carry out reforms in their political, economic and social domains and to accomplish the pre-defined accession criteria. However, it remains unclear whether integration depends entirely on the success of reforms undertaken by the candidate countries or on the willingness of the EU to set off a timely and successful integration with regard to the specifics of each country. While Europe is comprised of very heterogeneous areas, it deplores significant gaps in development. Real convergence, which would allow a reduction of economic inequalities between countries, remains a crucial question (see Treaty of Maastricht). This is an issue not only

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for the present member countries of the EU, but also within the context of the Union's enlargement eastwards. Consequently, the test of the existence of a real convergence process across countries may represent a significant contribution to economic analysis. It can also have important implications not only for national policies, but also for the European actions mainly channeled through cohesion and structural funds.

In this paper, we do not claim to have an answer to the question of the European future of the Balkans. We wish, rather, to highlight the development gaps between the Balkans and EU countries. Our study included analysis of the economic performance captured by three indicators of income (GDP per capita), labour productivity (GDP per person engaged) and employment rate (person engaged per population) between 1989 and 2005. Two concepts of real convergence have been analyzed, i.e. the β -convergence (convergence hypothesis) and the σ -convergence (reduction of inequalities). Our findings show evidence of real convergence of labour productivity in Balkans. However, the evidence of GDP per capita and employment rate convergence is mixed. Furthermore, the comparative analysis of Balkan economic performances relative to the EU-27 shows that the development gaps are very important, although the recovery started since 1991/1993 and there is a weak convergence process of income and labour productivity in EU-27.

The paper is organized as follows. Section 2 reviews briefly the theoretical aspects of the convergence process, which are mainly used in growth literature. Section 3 describes and analyzes the data of Balkan economic indicators. Section 4 presents an empirical analysis of real convergence and discusses the estimation results of convergence equations. Section 5 summarizes the main conclusions from the convergence process in Balkan countries.

## 2. The Concepts of Convergence

The popular approaches which are used to test the convergence process explore the concepts of β -convergence (absolute or conditional on a set of controlling variables) and σ -convergence. The former implies that the poor countries grow faster than the richer ones (i.e. convergence hypothesis) and the latter measures the reduction of dispersion of income within a sample of countries (see Barro and Sala-i-Martin 1995). The two concepts are complementary

measures of real convergence, because β-convergence is a necessary condition but not sufficient for σ-convergence (see Sala-i-Martin 1996a). Absolute convergence rests on the hypothesis of the neo-classical theory. Assuming that the technologies are identical and exogenous, the convergence process relies on diminishing returns of capita, the factor most responsible for the recovery of countries lagging behind (Solow 1956). Under these circumstances, economic policy does not have an impact on long-term growth. However, the new endogenous growth theory does not predict that absolute convergence is the rule. Countries approach different steady-states depending on several structural factors, such as human capital (Lucas 1988), R&D efforts (Romer 1990), among others. In this context, government policy can positively affect long-term growth through economic incentives.

The β-convergence has been applied in numerous papers since the pioneering study of Baumol (1986) on the OECD countries. The majority of evidence suggests that convergence is conditional where physical and human capital accumulation, innovation and investment are found to be the most significant conditioning factors (e.g., Levine and Renelt 1992; De la Fuente 1997; Temple 1999; Islam 1995, 2003). This approach, however, suffers from serious econometric pitfalls (Galton's fallacy), as pointed out by Friedman (1992) and Quah (1993). Hence, the σ-convergence is a supplementary test applied in many papers. But while a diminution in the dispersion is evidence of convergence, it does not offer a test of the convergence hypothesis, i.e., an economy with income (or productivity) lagging behind other economies has a potential to grow faster. Even so, the two concepts provide insight into real convergence and must be analyzed jointly. This is precisely what we will do in the next sections.

## 3. Data and Statistical Framework

Our empirical investigations examine the evolution of the GDP per capita (GDP/population), labour productivity (GDP/Employment) and employment rate (Employment/population) of five Balkan countries over the period of 1989-2005. We will also highlight the situation of these Balkan countries relative to EU countries. The data used are extracted from the Groningen Growth and Development Center database (GGDC 2007). The series of the GDP are expressed in PPPs (Purchasing Power Parities) in US dollars with constant prices in 1990. The use of the data in PPPs is

an approach which proves to be more adapted to the international comparisons of countries' economic performance (Maddison 2001, 2005).  Table 1 summarizes the average levels and growth rates of economic indicators by country in the period of 1989-2005. The results show considerable differences between countries. Indeed, Croatia has 2.6 times larger per capita GDP (165%) and labour productivity (152%) than Albania (64% and 58% respectively). Bosnia-Herzegovina ranks second with 108% for GDP per capita and 135% for labour productivity compared to the Balkan average. With respect to employment rate, the disparities are least marked and all countries are located around the average level. The comparative performance of GDP per capita and labour productivity is also differentiated. Bosnia-Herzegovina records the highest average annual increases in labour productivity (6.3%) and in GDP per capita (2.6%). Consequently, it caught up with most of its delay compared to Croatia. Albania ranks second, with 4.4% and 2.1% average annual rates of labour productivity and income per capita, respectively. In contrast, Serbia-Montenegro and, to a lesser extent, Macedonia experienced greater falls in GDP per capita (-4.1% and -1.5%) and in labour productivity (-1.6% and -0.8%). Finally, the decline in employment rate is rather general and ranged on average between -0.6% per year (in Croatia) and -3.7% per year (in Bosnia-Herzegovina)

Table 2 presents the Balkan situation relative to EU-27. The average levels of GDP per capita, labour productivity and employment rate are respectively about 28%, 42% and 70% the EU-27 levels. The Table 2 shows that the relative decrease in per capita GDP (-2.2%) and employment rate (-2%) was larger than that of labour productivity (-0.2%). It is interesting to underline that the majority of the relative decline took place in the 1989-1993 period for GDP per capita and during the period 1989-1991 for labour productivity. A slower recovery started in 1991/1993 for labour productivity and income (see Figure 1), whereas the employment rate continued to decline, except the slight rebound observed between 1993 and 1998. But as Figure 1 shows, the economic indicator levels of 2005 remain still lower than those observed in 1989.

| COUNTRY | GDP / capita | | GDP / Employment | | Employment/ Population | |
|---|---|---|---|---|---|---|
| | UE 27 = 100 | Relative growth rate in % | UE 27 = 100 | Relative growth rate in % | UE 27 = 100 | Relative growth rate in % |
| Albania | 18 | 0,1 | 25 | 2.6 | 74 | -2.3 |
| Bosnia and Herzegovina | 30 | 0,6 | 57 | 4.5 | 60 | -3.7 |
| Croatia | 46 | -2.0 | 64 | -1.2 | 72 | -0.6 |
| Macedonia | 24 | -3.5 | 38 | -2.6 | 64 | -0.7 |
| Serbia and Montetnegro | 22 | -6.1 | 27 | -3.5 | 79 | -2.4 |
| ALL | 28 | -2.2 | 42 | -0.2 | 70 | -2.0 |

**Table 2.**
Economic Indicators of Balkan Countries:
European Union=100, average 1989-2005
Notes: GGDC Database and author's calculation. GDP is expressed in $ with constant prices of 1990, person engaged for Employment.
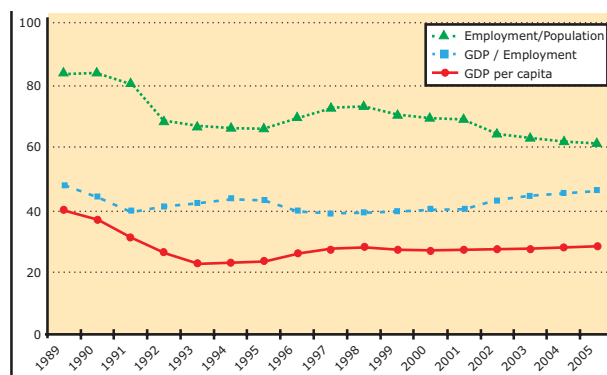


**Figure 1.**
Economic Indicators of Balkan Countries, EU27=100.

| COUNTRY | GDP / capita | | GDP / Employment | | Employment/ Population | |
|---|---|---|---|---|---|---|
| | Balkans = 100 | growth rate in % | Balkans = 100 | growth rate in % | Balkans = 100 | growth rate in % |
| Albania | 64 | 2.1 | 58 | 4.4 | 106 | -2.3 |
| Bosnia and Herzegovina | 108 | 2.6 | 135 | 6.3 | 85 | -3.7 |
| Croatia | 165 | 0.0 | 152 | 0.6 | 104 | -0.6 |
| Macedonia | 88 | -1.5 | 90 | -0.8 | 93 | -0.7 |
| Serbia and Montetnegro | 76 | -4.1 | 64 | -1.6 | 113 | -2.4 |
| ALL | 100 | -0.1 | 100 | 1.6 | 100 | -2.0 |

**Table 1:**
Economic Indicators of Balkan Countries,
average 1989-2005
Notes: GGDC Database and author's calculation. GDP is expressed in $ with constant prices of 1990, person engaged for Employment.

A more disaggregated view on each of the five Balkan countries reconfirms the same kind of evidence mentioned above but with different realities (see Figures 2, 3 and 4). Figure 2 compares trends in GDP per capita. After a col-

lapse during the period of 1989-1993, the average relative income level of Bosnia-Herzegovina recovered and slightly exceeded the 1989 level in 2005. Albania has reached the 1989 level in 2005. Croatia experienced a slow recovery that started in 1993 but it has not reached its 1989 level yet. For Macedonia and Serbia-Montenegro, no significant recovery was detected. We can make the same reports as before by examining comparative trends in labour productivity (see Figure 3), except the fact that the recovery is more signifi-

cant for all countries, excluding Macedonia. Finally, we can observe a continuous decline in the employment rate since 1989 (see Figure 4). This implies all Balkan countries and the 2005 employment rate levels are very close.

# 4. Empirical Evidence on Convergence

## 4.1. The Trends of Inequalities

The concept of σ-convergence implies a reduction in the inequalities of an economic indicator (e.g., income, productivity, etc.) within a sample of countries. Several measures can be considered to capture these inequalities (see Cowell and Jenkins 1995; Cowell 1995). In convergence literature, it is common to use the standard deviation or the coefficient of variation (standard deviation devised by the variable mean) to collect these inequalities. In this study, we chose the Theil index (Theil 1967) given that its properties are additive and decomposable (see Shorrocks 1984). Let $y_{it}$ be an economic indicator of country i ( $i=1,K,n$ ) at time t ( $t=1,K,T$ ). We can define the Theil index as the sum of contributions of each country to the global inequality of $y_{it}$:

$$Theil\_index_t = \sum_{i=1}^{n} Cineq_{it} \quad , \quad Theil\_index_t \in [0; \ln(n)] \quad (1)$$

where $Cineq_{it}$ is the contribution to global inequality of country $i$ at time $t$ defined by the following expression:

$$Cineq_{it} = \frac{y_{it}}{n\bar{y}_{\bullet t}} \ln\left(\frac{y_{it}}{\bar{y}_{\bullet t}}\right) \quad , \quad \bar{y}_{\bullet t} = \frac{1}{n}\sum_{i=1}^{n} y_{it} \quad (2)$$

where ln is the natural-logarithm. Table 3 presents the inequalities indicators in the Balkan countries. As can be seen, the GDP per capita inequality reveals an upward trend. The Theil index grew at 0.8% per year on average between 1989 and 2005. In contrast, the labour productivity and employment rate inequalities declined respectively at 2.1% and 7.9% per year on average. These results show clearly a σ - divergence process of GDP per capita and a σ - convergence of labour productivity and of employment rate (see Figure 5). In a disaggregated view, the contributions to the total inequalities of GDP per capita and labour productivity (see Table 3) are positive on average in Bosnia-Herzegovina (0.024 and 0.093 respectively) and Croatia (0.165 and 0.129 respectively). Furthermore, Bosnia-Herzegovina experienced a higher increase of contributions to inequalities of GDP per capita and labour productivity with respectively 7.6% and 16.7% average annual growth rates. In contrast, the fall of contributions to global inequality is recorded in
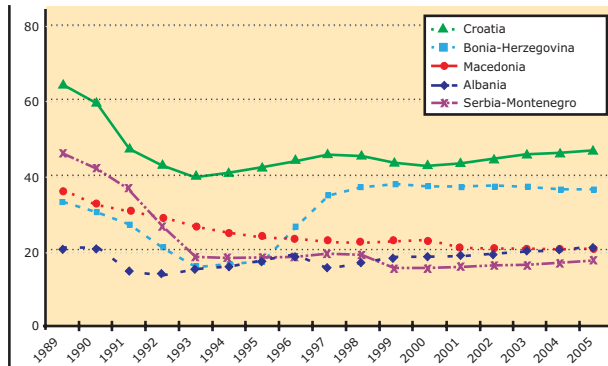


**Figure 2.**
GDP per capita, EU27=100.
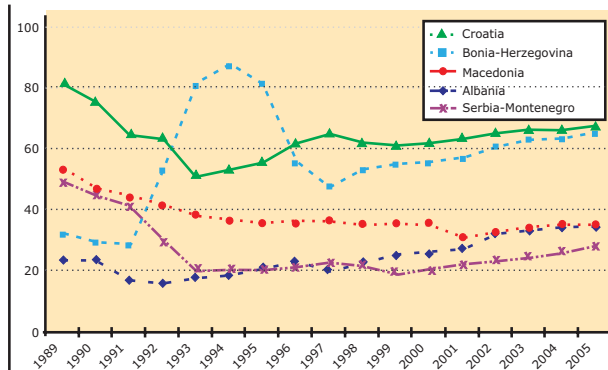


**Figure 3.**
Labour Productivity : GDP per person engaged,
EU27=100.
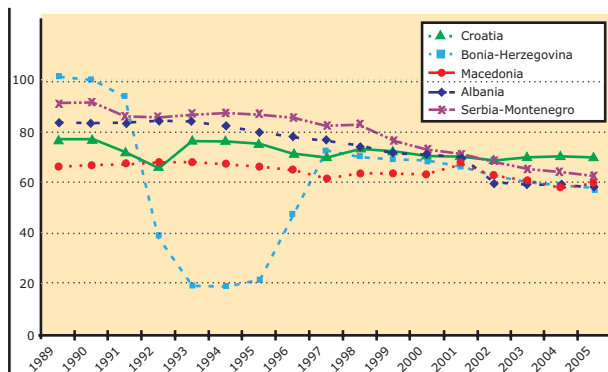


**Figure 4.**
Employment Rate : person engaged per population,
EU27=100.

Serbia-Montenegro (-6.8% for GDP per capita and -3.6% for labour productivity) and in Macedonia (-2.1% and -4.1% respectively). With respect to employment rate, the levels of contributions to global inequality are very close and range between 0.029 in Serbia-Montenegro and -0.016 in Bosnia-Herzegovina. Nevertheless, we can underline the highest progression (13.5% per year on average) of Bosnia-Herzegovina's contributions to employment rate inequality.

| COUNTRY | GDP / capita | | GDP / Employment | | Employment/ Population | |
|---|---|---|---|---|---|---|
| | Contribution to inequality | growth rate in % | Contribution to inequality | growth rate in % | Contribution to inequality | growth rate in % |
| Albania | -0.056 | 6.0 | -0.060 | 7.1 | 0.013 | -0.1 |
| Bosnia and Herzegovina | 0.024 | 7.6 | 0.093 | 16.7 | -0.016 | 13.5 |
| Croatia | 0.165 | 0.5 | 0.129 | -1.0 | 0.008 | 3.4 |
| Macedonia | -0.021 | -2.1 | -0.017 | -4.1 | -0.014 | 3.2 |
| Serbia and Montetnegro | -0.037 | -6.8 | -0.052 | -3.6 | 0.029 | -0.4 |
| ALL | 0.075 | 0.8 | 0.093 | -2.1 | 0.021 | -7,9 |

**Table 3.**
Inequality Indicators of Balkan Countries,
average 1989-2005
Notes: GGDC Database and author's calculation.
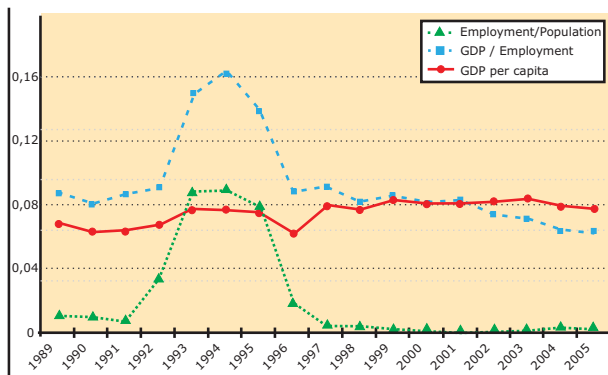


**Figure 5.**
Inequality of Economic Indicators, Balkan Countries

In a comparative analysis including several groups of countries, the decomposition property of the Theil indicator allows for distinction of 'between-group' and 'within-group' inequalities. The between-group inequalities index is defined as the sum of contributions of each group of countries to global inequality:

$$Theil\_index_{tB} = \sum_{j=1}^{m} CBineq_{jt}, \quad j = 1, K, m,\tag{3}$$

where $CBineq_{jt}$ is the contribution of group defined in the same manner as in equation (2) and by substituting $\gamma_{jt}$ to $\gamma_{it}$. The decomposition of the Theil index (see Table 4) shows that the inequalities between the Balkans and EU-27 account on average for 28% of total inequalities in labour productivity, 36% in GDP per capita and 44% in employment rate. The progression rates of between-inequalities are particularly higher for GDP per capita (+2.9% per year) and employment rate (+11.9% par year). Figure 6 compares trends of inequalities between Balkan and EU-27 countries. It may be observed that the largest increase of income inequalities between the two groups was realized in the period of 1989-1993. The inequality of labour productivity slightly increased in 1989/1991 but at the same time has not declined much since 1991.

| COUNTRY | GDP / capita | | GDP / Employment | | Employment/ Population | |
|---|---|---|---|---|---|---|
| | Average | growth rate in % | Average | growth rate in % | Average | growth rate in % |
| Between - Theil index | 0.057 | 2.9 | 0.032 | 0.5 | 0.007 | 11.9 |
| share | 36 % | 1.2 | 28 % | 1.5 | 44 % | 8.9 |
| Eu27 - Theil index | 0.101 | 1.0 | 0.118 | -1.1 | 0.017 | 2.9 |

**Table 4:**
Inequality Indicators: Balkan Countries versus EU27, 1989-2005
Notes: GGDC Database and author's calculation.
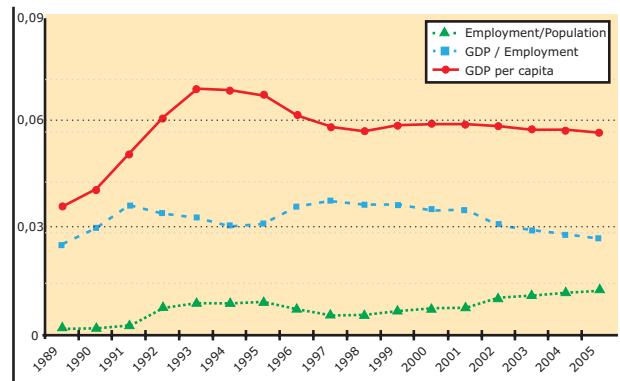


**Figure 6.**
Inequality of Economic Indicators,Balkans versus EU27

## 4.2. Test of Convergence Hypothesis

The index $Theil\_index_t$ captures the level of the total inequality at any time $t$. The slowdown of the index collects the σ-convergence process, but it does not support the convergence hypothesis. Thus, it's necessary to supplement

the analysis by examining the σ-convergence process. In order to test this last, we considered the theoretical framework on the convergence of the economies. One may refer to Barro and Sala-i-Martin (1995) or Islam (1995) for the analytical development to derive the convergence equation from production function. In particular, the empirical approaches rest largely on the reduced following equation:

$$\ln y_{it} = \bar{c} + \beta \ln y_{i0} + X'_{it}\gamma + u_{it} , \qquad (4)$$

where $y_{it}$ is the GDP per capita (or labour productivity) of country i ( $i=1, K, n$ ) at time t ( $t=1,K,T$ ), and $y_{i0}$ is its initial value. The error term $u_{it}$ captures the effects of the omitted variables that are peculiar to both country and time. $X_{it}$ is a vector of exogenous variables which determines the individual equilibrium level of countries. The constant term $c$ is a function of the steady-state assumed to be constant. The condition that $\beta<1$ implies a convergence process, with the speed of convergence equal to $(-1/T)\ln(\beta)$

Within the framework of modeling at an international level, the choice of explanatory variables ( ) is strictly limited by the availability of data across countries and over time. Among the relevant factors, it is wise to consider the variables already used in the studies on the conditional convergence (see Dowrick and Nguyen 1989; Mankiw, Romer and Weil 1992; Barro and Sala-i-Martin 1992; Sala-i-Martin 1994, 1996b; De La Fuente, 1997). Levine and Renelt (1992) list no less than 15 variables used in the literature on economic growth. However, the authors conclude that convergence continues to be robust with the investment and the initial value of income, while other variables lose their significance (e.g., population growth, monetary and tax-related variables, etc.).

In this paper, we limited our objective to identifying the economic performance of Balkan countries compared to EU countries. Thus, on the one hand, we considered the Balkan dummies in the list of explanatory variables. This enabled us to take account of the difference in the equilibrium levels. On the other hand, we assumed that varies across the two groups of countries, i.e. we supposed that Balkan and EU countries approach various steady-states but at varying speeds. In order to compare the EU-27 and Balkan convergence speeds, we made the parameter of the convergence dependent on a dummy-group variable. Finally, as the previous Figures showed, two phases were identified, 1989-1993 and 1994-2005. The first period was characterized by a collapse in per capita income and labour productivity in all countries. The decline is dramatically significant in the Bal-

kans due to the conflicts which marked this region. Taking this situation into account, we incorporated into the model a temporal dummy    for the first period and 0 otherwise. All things considered, the estimates specification is in the following form:

$$\ln y_{it} = \bar{c} + \beta_{it} \ln y_{i0} + \gamma_1 D_j + \gamma_2 T_t + u_{it} \quad , \quad \beta_{it} = \alpha_0 + \alpha_1 D_j + \alpha_2 T_t \quad , \qquad (5)$$

where $D_j = 1$ if $j = Balkans$ and $T_t = 1$ for $t = 1989 - 1993$.

### 4.3. The Estimation Results

The method of estimation of equation (5) must take into account the structure of the error term $U_{it}$. If $U_{it}$ is composed of a country and time specific effects, the OLS (Ordinary least squares) method is not appropriate and the two situations must be considered. The first one assumes that the specific effects are fixed. In this case, we can use the 'within' estimator by applying OLS to the specification in terms of deviations from means of variables. However, the transformation 'within' eliminates the effects but also all time-invariant and individual-invariant variables. The second method assumes that the specific effects are random. In this case, the GLS (Generalized Least Squares) provides efficient estimators and allows for the identification of all structural parameters (see Baltagi 2001). Even so, it should be emphasised that if the effects are correlated with the explanatory variables, GLS is not recommended. Although for $N$ and $T$ large the GLS and within estimators are asymptotically equivalent. Moreover, in the semi-asymptotic case, GLS remains efficient than the within estimator (see Matyas 1995).

The GLS estimations of the equation (5) using data from the 32 countries (i.e., 27 EU and 5 Balkan countries) over the period 1989-2005 are presented in Table 5. As can be seen in Table 5, we estimated successively the convergence equation for GDP par capita, labour productivity and employment rate. The results give evidence of convergence of per capita GDP and labour productivity in the Balkans. Moreover, our findings show that the speed of convergence is significantly higher for labour productivity than GDP per capita. It appears also that the speed of convergence of labour productivity in the first sub-period 1989-1993 (3.5%) is lower than in the second sub-period 1994-2005 (4.6%). However, the situation is reversed in the case of GDP per capita, where the speed of convergence loses 0.4 points between the first and second sub-periods. On average it could take 32 years to eliminate half of the Balkan countries' differences in GDP per capita, but only 15 years to do so in the case of labour productivity. It is noteworthy that our

results do not suggest any convergence process in the case of EU countries. The speeds of convergence are negative and rather indicate a trend of persistence. With respect to employment rate convergence, the results are reversed. The parameter of convergence is still negative for Balkan countries and does not suggest any convergence process. While in the case of the EU, the results show a clear convergence process of 2.4% convergence speed in the first sub-period and of 5.7% in the second sub-period. Furthermore, our estimations indicate that the country variability (country-effect variance/ sum of all variances) represents respectively 34%, 48% and 54% of the total variability of employment,

income and productivity. This suggests that the country specificities play a significant role in the convergence process, marked even more strongly when it comes to income and productivity.

## 5. Concluding Remarks

In this paper, we have conducted an exploratory approach of real convergence process across five Balkan countries in the period 1989-2005. Two concepts of real convergence were analyzed, i.e., the -convergence (convergence hypothesis) and the -convergence (reduction of inequalities). Economic performance was captured by three indicators of income, productivity and employment. The results show evidence of real convergence of labour productivity in the Balkans. Indeed, the inequality declined at 2.1% per year between 1989 and 2005, and the speed of convergence was at 4.6% in the period of 1994-2005. The evidence of GDP per capita and employment rate convergence is mixed. The inequality of income increases at 0.8%, but convergence in GDP per capita ran at a slow annual rate confirming the basic rule of a 2% convergence rate. On the contrary, employment rate inequalities declined at 7.9% but our results do not suggest any convergence process. Furthermore, the comparative analysis of the Balkans' economic performance relative to the EU-27 show that the development gap is very significant, despite the starting recovery noted since 1991/1993 and the weakness convergence process of income and labour productivity in EU-27. Consequently, from the perspective of EU's enlargement eastwards, the European policies need to take this reality into account. The EU should support additional actions favorable to the development of the entire region of the Balkans, without further deepening of disparities among countries. It needs to define and implement common strategic development objectives for the Balkans. In the context of the Balkans' faster integration into EU, the promotion of mutual regional cooperation should be harmonised additionally. Finally, with respect to our approach, our findings are of great importance but their robustness must be analyzed, e.g., sensitivity of the results to the introduction of conditioning variables, estimation method, etc. Furthermore, numerous directions could be envisaged both at theoretical and empirical levels by analyzing more deeply the relationship between convergence and inequality.

| Equation | GDP / capita | GDP / Employment | Employment/ Population |
|---|---|---|---|
| Constant | -1.453* (0.639) | 0.085 (0.701) | -0.552** (0.098) |
| $\ln(y_{io})$ | 1.169** (0.074) | 1.008** (0.069) | 0.381** (0.119) |
| $\ln(y_{io}) \times Dummy_{Balkans}$ | -0,0456* (0.202) | -0,554** (0.178) | 0,287** (0.068) |
| $\ln(y_{io}) \times T_{1989-93}$ | -0.045* (0.022) | 0.100** (0.022) | 0.287** (0.068) |
| $Dummy_{Bslkans}$ | 3.912* (1.729) | 5.111* (1.699) | -0.992** (0,289) |
| $T_{1989-93}$ | 0.266* (0.210) | -1.186** (0.222) | 0.276** (0,060) |
| Country effect (share) | 0.025(28%) | 0.024(54%) | 0.008(34%) |
| Temporal effect (share) | 0.012(22%) | 0.007(15%) | 0.001(4%) |
| Random effect (share) | 0.015(30%) | 0.014(31%) | 0.014(62%) |
| SEE | 0.119 | 0,115 | 0,114 |
| Observations | 544 | 544 | 544 |
| **Speed of convergence: period 1989-1993** | | | |
| EU 27 | -0.7 % | -0.6 % | 2.4 % |
| Balkans countries | 2.6 % | 3.5 % | - |
| **Speed of convergence: period 1994-2005** | | | |
| EU 27 | -0.9 % | -0.0 % | 5.7 % |
| Balkans countries | 2.2 % | 4.6 % | - |

**Table 5.**
Estimation Results of Convergence Model,
Balkans and EU27, 1989-2005
Notes : Random effects model and Generalized Least Squares (GLS)
estimations. t=0 in 1989. Numbers in parentheses are standard errors.
 (*) and (**) represent statistical significance  at 5% and 1% level,
 respectively.  SEE: Standard Error of estimate.

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# EU Market Access and Export Performance of Transition Countries

Joze P. Damijan , Matija Rojec

## Abstract

*A remarkable upgrading of export performance and a major re-orientation of foreign trade in favour of the EU-15 have been among the most outstanding features of the transition and EU integration processes of former socialist countries from Central, Eastern and South East Europe. This paper looks at the importance of (EU) market access for the upgrading of the export performance of these countries. Based on the empirical approach of Redding and Venables (2003, 2004), and Fugazza (2004), it was found that market access growth represents the main determinant of export growth for transition countries. Additionally, the importance of foreign market access growth for the export growth of transition countries is constantly increasing. Market access growth, in the case of both the NMS-8 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia) and most of the CC-3 (Bulgaria, Romania and Croatia) occurred predominantly within the EU-15. Better EU-15 market access can largely explain the better export performance of the NMS-8 in comparison to other transition countries.*

*Key words: Export performance, Transition countries, (EU) market access, Supply capacity*

**JEL : F120, F150, F210, O100, P300**

## 1. Introduction

A remarkable upgrading of export performance and a major re-orientation of foreign trade in favour of the EU-15 have been among the most outstanding features of the transition and EU integration processes of former socialist countries from Central, Eastern and South East Europe. Since the beginning of the 1990s, most European transition countries recorded extremely high growth in exports in absolute as well as relative terms, accompanied by increasing market shares abroad, especially in the EU-15, and an increasing domination of the EU-15 as a market for exports. The analysis distinguishes between three groups of transition countries, i.e. the eight countries which entered the EU in 2005 (new member states, NMS-8: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia), the two countries which entered the EU in 2007 plus Croatia (candidate countries, CC-3: Bulgaria, Croatia and Romania[1]) , and three South-East European countries (South East Europe countries, SEE-3: Albania, Macedonia, and Serbia and

Montenegro [2]).

The following are the main features of increasing export performance and changes to the foreign trade of transition countries (see Table 1 for details):

- In 1991-2004, the exports of the NMS-8 increased by 648% and of the CC-3 by 382%. The corresponding

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| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EU – 15** | | | | | | | | | | | | | | |
| Exports of goods (in EUR) | 1201850 | 1224991 | 1247462 | 1396704 | 1572823 | 1665205 | 1856468 | 1944269 | 2033628 | 2411635 | 2473163 | 2481826 | 2453286 | 2639310 |
| Imports of goods (in EUR) | 1232648 | 1235180 | 1183345 | 1319305 | 1476558 | 1547433 | 1720310 | 1835065 | 1969006 | 2394873 | 2398083 | 2358467 | 2351142 | 2564615 |
| Exports index (1991=100) | 100 | 102 | 104 | 116 | 131 | 139 | 154 | 162 | 169 | 201 | 206 | 207 | 204 | 220 |
| Exports as % of GDP | 20,5 | 20,0 | 20,3 | 21,7 | 23,4 | 23,6 | 25,0 | 25,1 | 24,9 | 27,7 | 27,4 | 26,5 | 25,8 | 26,6 |
| Exports as % of World imports | 41,1 | 41,1 | 38,1 | 38,0 | 39,4 | 38,5 | 37,2 | 38,8 | 37,2 | 33,6 | 34,7 | 35,4 | 36,1 | 35,5 |
| **NMS-8** | | | | | | | | | | | | | | |
| Exports of goods (in EUR) | 32297 | 34754 | 44575 | 52126 | 61703 | 66691 | 81696 | 94109 | 98759 | 129082 | 148053 | 159724 | 173113 | 209205 |
| Imports of goods (in EUR) | 33434 | 38385 | 53204 | 61424 | 74031 | 89023 | 108974 | 122628 | 127081 | 162833 | 179233 | 189009 | 200259 | 235201 |
| Exports index (1991=100) | 100 | 108 | 138 | 161 | 191 | 206 | 253 | 291 | 306 | 400 | 458 | 495 | 536 | 648 |
| Exports as % of GDP | n.a. | n.a. | n.a. | n.a. | 29,3 | 27,9 | 30,3 | 32,4 | 32,5 | 36,7 | 37,4 | 37,8 | 41,5 | 46,0 |
| Exports as % of World imports | 1,11 | 1,17 | 1,36 | 1,42 | 1,54 | 1,54 | 1,64 | 1,88 | 1,80 | 1,80 | 2,08 | 2,28 | 2,55 | 2,81 |
| Exports to EU-15 as % of EU-15 imports | 1,54 | 1,75 | 2,14 | 2,34 | 2,53 | 2,53 | 2,87 | 3,34 | 3,47 | 3,69 | 4,19 | 4,57 | 4,94 | 5,38 |
| Exports to EU-15 as % of total exports | 58,9 | 62,2 | 56,8 | 59,2 | 60,6 | 58,8 | 60,4 | 65,1 | 69,1 | 68,4 | 67,8 | 67,5 | 67,1 | 65,9 |
| **CC-3** | | | | | | | | | | | | | | |
| Exports of goods (in EUR) | 8766 | 9771 | 10588 | 12117 | 13854 | 13955 | 15503 | 15264 | 15747 | 21344 | 23647 | 25925 | 27750 | 33372 |
| Imports of goods (in EUR) | 9793 | 11649 | 13267 | 13891 | 18134 | 19393 | 22414 | 22471 | 22397 | 29909 | 35744 | 38617 | 43358 | 51242 |
| Exports index (1991=100) | 100 | 111 | 121 | 138 | 158 | 159 | 177 | 174 | 180 | 243 | 270 | 296 | 317 | 381 |
| Exports as % of GDP | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 22,8 | 23,8 | 21,3 | 25,9 | 26,4 | 26,9 | 25,7 |
| Exports as % of World imports | 0,30 | 0,33 | 0,32 | 0,33 | 0,35 | 0,32 | 0,31 | 0,30 | 0,29 | 0,30 | 0,33 | 0,37 | 0,41 | 0,45 |
| Exports to EU-15 as % of EU-15 imports | 0,28 | 0,32 | 0,38 | 0,45 | 0,47 | 0,45 | 0,46 | 0,47 | 0,46 | 0,52 | 0,61 | 0,68 | 0,74 | 0,78 |
| Exports to EU-15 as % of total exports | 38,9 | 40,5 | 42,9 | 48,6 | 50,1 | 50,2 | 51,1 | 56,2 | 57,9 | 58,4 | 61,5 | 61,5 | 62,3 | 60,0 |
| **SEE-3** | | | | | | | | | | | | | | |
| Exports of goods (in EUR) | n.a. | n.a. | n.a. | n.a. | n.a. | 2664 | 3575 | 3872 | 2837 | 3551 | 3732 | 3943 | 3953 | 4893 |
| Imports of goods (in EUR) | n.a. | n.a. | n.a. | n.a. | n.a. | 5274 | 6376 | 6741 | 5831 | 7411 | 8760 | 10360 | 10690 | 13305 |
| Exports index (1996=100) | n.a. | n.a. | n.a. | n.a. | n.a. | 100 | 134 | 145 | 107 | 133 | 140 | 148 | 148 | 184 |
| Exports as % of GDP | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 16,2 | 19,4 | 12,3 | 10,4 | 17,3 | 15,7 | 14,5 | 16,3 |
| Exports as % of World imports | n.a. | n.a. | n.a. | n.a. | n.a. | 0,06 | 0,07 | 0,08 | 0,05 | 0,05 | 0,05 | 0,06 | 0,06 | 0,07 |
| Exports to EU-15 as % of EU-15 imports | n.a. | n.a. | n.a. | n.a. | n.a. | 0,17 | 0,21 | 0,21 | 0,14 | 0,15 | 0,16 | 0,17 | 0,17 | 0,19 |
| Exports to EU-15 as % of total exports | n.a. | n.a. | n.a. | n.a. | n.a. | 40,4 | 40,5 | 42,4 | 46,3 | 43,6 | 49,3 | 48,6 | 50,5 | 50,1 |

**Table 1.**
MAIN EXPORT-RELATED INDICATORS OF NMS-8, CC-3, SEE-3, AND EU-15 IN 1991-2004
(in mill. EUR, current prices and %)
Sources: UNCTAD, World Bank and WIIW (The Vienna Institute for International Economic Studies) databases.
Note: NMS-8: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia;
CC-3: Bulgaria, Croatia and Romania; SEE-3: Albania, Macedonia, and Serbia and Montenegro

increase in the EU-15 was 220%. Over the shorter period of 1996-2004, the exports of the SEE-3 increased by 184%. The export increase of the CC-3 and in particular of the NMS-8 was much higher over the same period.

- The increase in the exports of transition countries resulted directly from a considerable increase in their market shares abroad, especially in the EU-15. In 1991-2004, the share of NMS-8 exports to the EU-15 in terms of total EU-15 imports increased from 1.54% to 5.38%, and for the CC-3, from 0.28% to 0.78%. In 1996-2004, market shares of the SEE-3 in the EU-15 remained almost unchanged (it increased from 0.17% to 0.19%). The market shares of the NMS-8 and the CC-3 in the EU-15 recorded a very high increase over the same period.

- All of this points to the growing importance of EU-15 markets for the exports of transition countries. In 2004, the EU-15 absorbed as much as 65.9% of total NMS-8 exports (in 1991 58.9%), 60.0% of total CC-3 exports

(38.9% in 1991) and 50.1% of total SEE-3 exports (in 1996, 40,4%). The situation with imports is similar.

- All of this points to considerable export intensification for the NMS-8 measured by an export to GDP ratio (increasing from 29.3% in 1995 to 46.0% in 2004). The level and pace of export intensification of the CC-3 has been much lower (25.7% in 2004), while the export intensity of SEE-3 stagnated at an even lower level (approximately 16%).

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[1] We use the term 'candidate countries' because Bulgaria and Romania were not yet EU member states at the time of the analysis.

[2] In terms of economic performance and the transition process, the SEE-3 clearly lag behind the CC-3 (see EBRD 2005, for example). The SEE-3, however, are at a rather different stage in the EU integration process: Macedonia is a candidate country, Albania concluded the Stabilisation and Association Agreement with the EU in 2006, while Serbia and Montenegro is only at the negotiation stage of this agreement. In addition, Serbia and Montenegro recently split into two independent states. In the analysis, the two countries are treated as one because they were a single state at the time the data was collected.

The above trends demonstrate rapid, strong growth and the increasing importance of the EU for the foreign trade of transition countries. In all countries, the trends and structural changes progress in the same direction, but significantly vary between different groups of countries. As expected, this process is by far the fastest and the strongest in the NMS-8. These countries demonstrate rapid progress in all the analysed aspects of export competitiveness. The CC-3 show similar trends, but the progress is much slower. The SEE-3 also increased their exports, but lag behind considerably in terms of volume as well as the dynamics of their foreign trade. Their market shares in the EU-15, and the export intensity of their economies (export to GDP ratios), have remained almost unchanged since 1996.

The objective of the paper is to analyse the role of changes in EU market access, i.e. European integration, in the impressive growth of the export performance among transition countries. Based on the relevant theoretical concepts, we follow the approach of Redding and Venables (2003, 2004), and Fugazza (2004) and distinguish between market access and supply capacity determinants of export performance. More precisely, we build an econometric model to assess the contribution of market access (in general and to the EU-15) versus supply capacity improvement to increasing the export performance of transition countries. Following the gravity approach, the proximity and size of the EU market, in addition to the EU integration process, are rather self-evident factors contributing to the improved EU market access for transition countries. In this framework, it is not our ambition to disentangle the impact of the basic factors of a gravity model (size of trading countries, their proximity, historical/cultural/language proximity) from the impact of institutional factors (timing and types of institutional arrangements of EU integration process) on EU market access. This is beyond the reach of the available data set. The focus of our study is more on whether there are any significant differences in the contribution of EU market access to the export performance of the three groups of transition countries. In this way, we broaden the existing analysis of market access versus the supply capacity factors of the export performance of transition countries by Redding and Venables (2003, 2004) and Fugazza, in three directions: (i) by increasing the number of transition countries examined, (ii) by dividing the countries into three groups (NMS-8, CC-3, SEE-3), differentiated by level of development, export performance and status within the EU integration process, and (iii) by updating the period analysed to 2004.

The paper is structured as follows. Section 2 analyses the theoretical and empirical context of the growing export performance of transition countries. Section 3 analyses the existing literature on the improved access of transition countries to EU markets. In Section 4 we build an econometric model for assessing the relevance of market access and supply capacity for the export performance of transition countries and present our results. Section 5 presents our conclusions..

## 2. Growing Export Performance of Transition Economies in Theoretical and Empirical Contexts

The existing literature on export performance tends to distinguish between factors determining market access and factors determining the supply capacity of exporting countries. As far as market access is concerned, the gravity theory presents the most powerful explanatory tool. The opening up of European transition economies seems to be the most important factor in their improved export performance, simply because it enabled gravity forces - proximity of and integration in the large and high purchasing power EU markets - to act and to make the EU-15 their main market. The supply capacity factors of export performance can be explained by comparative advantages arising from different factor intensities/endowments and/or by economies of scale in (horizontal) intra-industry trade characterized by similarities in technology and quality standards. Both theoretical approaches are relevant for the explanation of the export performance of transition countries because, as shown by the data, the main part of the trade of transition countries is still inter-industry trade and vertical intra-industry trade, though the share of horizontal intra-industry trade is slowly increasing. More horizontal intra-industry trade will only gradually outweigh trade based on comparative advantages.

The literature dealing with the increasing export perfor-

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[3]    Factors determining the supply capacity are numerous - overall export potential of the exporting country expressed by GDP and GDP per capita, productivity level, level of technological development, FDI, real exchange rate, institutional changes (see Redding and Venables 2003, 2004, Fugazza 2004, Rojec and Ferjančič 2006) - yet we do not analyze these, as our primary interest is the role of EU market access.

mance of transition countries ranges from gravity models, upgraded gravity models, distinguishing between market access and supply capacity factors, shift share analysis, analysis of (export) competitiveness and more or less comprehensive descriptive analysis of factors behind growing export performance.

By far the most popular approach to the analysis of the export performance of transition countries is that inspired by the gravity theory (Collins and Rodrik, 1991; Havrylyshyn and Pritchett, 1991; Rosati, 1992; Hamilton and Winters, 1992; Baldwin, 1994; Kaminski, Wang and Winters, 1996a; Jakab, Kovacs and Oszlay, 2001; Havrylyshyn and Al-Atrash, 1998; Egger, 2003; Fidrmuc and Fidrmuc, 2003; Bussiere, Fidrmuc and Schantz, 2005). The gravity models[4] suggest that, with the lifting of central planning restrictions on foreign trade, the transition to market economies and the independence of new countries have led to an increase and geographical restructuring in foreign trade along the lines of the gravity theory, i.e. the foreign trade intensity of transition countries increased to a major extent, and the EU-15, as a large, nearby, highly developed market, assumed the role of the dominant trading partner. Transition countries gradually approach the »normal« level of their trade with developed countries, especially the EU, but there are considerable differences between individual countries.

| Period | Exports growth | Foreign market access (FMA) growth | Supply capacity growth | FMA growth within the region | FMA growth outside the region/ Western Europe1 |
|---|---|---|---|---|---|
| **FUGAZZA: Eastern Europe and Central Asia2** | | | | | |
| 1980-87 | 9 | -2 | 7 | -17 | -1 |
| 1984-91 | 23 | 31 | 34 | 30 | 31 |
| 1988-95 | 4 | 80 | -90 | 117 | 79 |
| 1992-99 | 66 | -9 | 48 | 5 | -9 |
| **REDDING AND VENABLES: Eastern Europe3** | | | | | |
| M1970/73-1994/97 | 187 | 95 | 40 | 3 | 61 |
| 1970/73-1982/85 | 44 | 34 | 11 | 0 | 18 |
| 1982/85-1994/97 | 100 | 45 | 26 | 3 | 32 |

**Table 2.**
Components of Export Growth in Transition Countries included in Fugazza (2004) and Redding and Venables (2003)
Notes: 1/ 'Outside the region' in the case of Fugazza and 'Western Europe' in the case of Redding and Venables;
2/ Hungary, Poland, Romania, Bulgaria and Turkey;
3/ Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania

Redding and Venables (2003, 2004), and on their basis Fugazza (2004), developed a model of trade which uses gravity techniques to estimate to what extent the export growth of a country is due to changed access to foreign markets and to what extent it is due to changes in the internal supply capacity of the exporting country. The internal supply capacity is regressed to variables such as GDP, population, internal transport costs and one or two institutional variables (real exchange rate fluctuations, risk of expropriation, labour market characteristics). Table 2 shows that, overall, market access has been more important than supply capacity for improving the export performance of transition countries. In Redding and Venables (2003), foreign market access growth was a much more important source of export growth than supply capacity growth. The main component of foreign market access growth was Western Europe (i.e. EU). Still, the actual level of trade of Eastern Europe is lower than one would expect considering its good market access and better than average internal geography and institutions. This is because transition countries are faced with supply capacity constraints. The results of Fugazza are more ambiguous. In the first phase of transition (1988-95), foreign market access was much more important for the export growth of transition countries than supply capacity growth, while the situation in 1992-99 was quite the opposite. It is more or less obvious that the beginning of transition was characterized by the opening of the markets in EU and elsewhere, while defensive enterprise restructuring (elimination of non-viable companies and production programs) reduced the supply capacity.

Other approaches to the analysis of the export performance of transition economies include:

· Shift-share analysis, which decomposes the overall increase in exports into a general demand component, a structural effect component and a competitive effect component. Havlik, Landesmann and Stehrer (2001) demonstrate that transition countries considerably improved their competitive position

[4]   In gravity models, trade between two countries is positively related to each country's economic size and development level, and negatively to the distance between them, the latter determining transport costs (Rivera-Batiz and Olive, 2003, pp. 99-102). Size determines the supply conditions in the source country and the demand conditions in the host country. Other factors, which influence the magnitude of bilateral trade, like common language, if two countries were part of the same territory, common borders, free trade arrangement, are also commonly included in the model (Bussiere. Fidrmuc and Schantz, 2005: 14-15).

(competitive effect component) in the EU-15 compared to non-EU competitors.

- Synthetic index of export performance, composed of (i) the change in the dollar value of exports, (ii) the change in the share of CMEA (Council for Mutual Economic Assistance) countries in total exports, (iii) the percentage increase in manufactured exports to OECD, (iv) the ratio of OECD-oriented manufactured exports to GDP. Kaminski, Wang and Winters (1996b) claim that speed and scope of transition reforms have been more important than initial conditions and market access in explaining inter-country differences in export performance.

- (Export) competitiveness analysis (Halpern, 2002; IMD, 2004; Zinnes, Eilat and Sachs, 2001; Havlik, 2000) of transition economies suggests positive contribution of supply capacity factors to CEEC's export performance.

## 3. Improved Access of CEEC to EU Markets

One of the most outstanding features of the export performance of transition countries from the beginning of transition is the increasing importance of EU-15 as the main market of their exports. Most of this development is explained by gravity theory, i.e. by the fact that pre-transition trade within CMEA countries was well above the 'normal' level and with the EU-15 well below the 'normal' level. The size, proximity and development level of the EU-15 are extremely strong gravity forces for the exports of transition countries. Additionally, the EU integration process has provided these countries with preferential access to EU-15 markets. How important has been this institutional factor? The fact that all three analyzed groups of transition countries considerably increased their market shares in the EU-15 suggests that preferential access to EU-15 markets has produced the anticipated effects. Unfortunately, to our knowledge, no econometric estimation of the subject has been done so far[5] .The literature suggests that preferential market access, especially the Europe Agreements, has clearly been important for increasing the volume of trade in transition countries, but has not been directly responsible for much of the growth of their exports (Kaminski, Wang and Winters, 1996b: 34). This is because the scope of preferential treatment has been limited by a number of inherent limitations

(antidumping procedures, tight rules of origin, delays in liberalizing the import of sensitive products) while other basic factors of export performance have been more important for export expansion. Because of this, transition countries with basically the same scope of preferential access to the EU-15 perform differently in terms of their exports.

The access of transition countries to OECD/EU markets has evolved in three stages. The first stage was the removal of discriminatory measures (non-tariff barriers) aimed specifically against state trading economies, and the granting of MFN status. The EU was the first to do this. The second stage was granting of preferential market access under the General System of Preferences (GSP), which put transition countries on par with developing countries with quota limited free access for most products. Again the EU was the first to do this. The third stage was the signing of Europe Agreements between the EU-15 and the NMS-8 by the mid-1990s (Poland, the former Czechoslovakia and Hungary in 1991, Estonia, Latvia and Lithuania in 1995, and Slovenia in 1996), and their anticipated accession to the EU after the Copenhagen EU summit (Kaminski, Wang and Winters, 1996b). Romania and Bulgaria signed Europe Agreements in 1993. The other countries we will analyze signed Stabilisation and Association Agreements[6] : Croatia and Macedonia in 2001, Albania in 2006, while Serbia and Montenegro are still in negotiations. In 2000, the EU granted autonomous trade measures to the countries of the Western Balkans, including Albania, Croatia, Macedonia, and Serbia and Montenegro,

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[5]    Recent analysis of Mongelli, Dorrucci and Agur (2005) partly deals with this issue, although it is not directly related to the EU accession process. They investigate the link between economic integration and the overall institutional process of regional integration in Europe. The evidence suggests that the interaction between regional institutional and trade integration is significant. Such interaction runs in both directions, but the link from institutional to trade integration dominates

[6]    A Stabilisation and Association Agreement has practically the same coverage as a Europe Agreement, plus it adds special emphasis to the promotion of regional cooperation (creation of a network of free trade agreements of SEE countries, recently upgraded into their membership in CEFTA) and political stability.

[7]    On January 27, 2006, the Commission published a Communication "The Western Balkans on the road to the EU: consolidating stability and raising prosperity" in which it lays down, inter alia, policy proposals to foster trade, like the rapid conclusion of the regional Free Trade Agreement between the countries of the region, and establishing a zone of diagonal cumulation of origin between the EU and the countries of region that have concluded free trade agreements with the EU.

making it possible for all their exports to enter the EU free of duties and any quantitative limits. In 2005, these autonomous trade concessions were extended until 2010[7].

According to Kaminski, Wang and Winters (1996b: 33), the GSP represented a big step in tariff liberalization[8] , but there is little evidence that, "with its limitations and exclusions (quantity limits, special treatment of sensitive products, uncertainty of access), it alone can explain changes in transition economies shares in OECD imports." Clearly, Europe Agreements have been more important than GSP. Kaminski (1994) analyzed the effects of Europe Agreements with Czechoslovakia, Hungary, Poland, Romania and Bulgaria signed in 1991 and 1992. He claims that provisions on trade with industrial products, which affected about 80% of the exports of the five countries to the EU, significantly improved their access to EU markets. In 1992, the first year they were in force in Hungary, Poland and the former Czechoslovakia, the Agreements freed slightly less than 50% of total exports to the EU from import duties and non-tariff barriers. According to the Agreements, these shares were to increase over five years to about 80% for the former Czechoslovakia, 60% for Hungary and 70% for Poland. In addition, tariffs were reduced for a number of other products, and the Copenhagen summit further cut the time to reach the top of the EU preferential trade pyramid, which was then occupied by EFTA countries. These reductions translated into a competitive edge over suppliers from other countries. Still, the Europe Agreements retained a number of restrictions characteristic for GSP (delays in liberalizing imports of sensitive products, tight rules of origin, continuing threats of antidumping and the virtual exclusion of agriculture), which were removed only gradually in the process of EU integration.

# 4. Accounting for the Contribution of Market Access Versus Supply Capacity Improvement to Export Performance

In this section we assess the contribution of foreign market access versus internal supply capacity improvement to the export growth of individual transition countries. This approach consists of two steps. In the first step, we quantify the respective roles of foreign market access and supply capacity as two key determinants of the export performance of a given country. In the second step we then use the esti-

mates obtained in the first stage of the analysis in order to construct supply capacity and foreign market access series. These serve as an analytical tool to reveal the importance of foreign market access and of the supply capacity of the home economy for a country's export performance.

## 4.1. Decomposition of Export Performance

Total export growth can be decomposed into supply capacity and foreign market access growth. Following the approach of Redding and Venables (2003, 2004) and Fugazza (2004), we estimate a gravity model equation where the dependent variable is exports (logarithm) from country i to

$$(1) \quad \ln X_{ij} = \alpha + \beta_j Partner_j + \gamma_i Country_i + \delta_1 Dist_{ij} + \delta_2 Bord_{ij} + u_{ij}$$

country j and the dependent variables are bilateral distance (logarithm), an indicator of the existence of a common border, exporter-country dummies and importer-partner dummies:

Bilateral distance $Dist_{ij}$ and the border dummy $Bord_{ij}$ are assumed to capture geographical bilateral trade costs. Exporters and importer partners fixed effects, $Country_i$ and $Partner_j$, respectively, are introduced to control for supplier capacity and market capacity. These terms can also serve as a control for institutions and policy related bilateral trade costs.

The model is estimated for 14 transition countries (NMS-8, CC-3, SEE-3) at the level of aggregate trade flows of these countries with their most important trading partners from all over the world. The data set spans over the period 1994-2004, which makes a balanced panel for 11 years. Bilateral trade flows, distance measures and GDP data are obtained from WIIW and CEPII databases.

The model (1) is estimated year-by-year in order to allow for annual variations in estimated individual parameters of interest. A simple OLS estimator is used in these exercises. Results are presented in Table 3. Estimated coefficients of

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[8]    At the time of its introduction for transition countries, MFN tariffs on industrial products in the EU averaged around 6%, whereas average GSP tariffs were around 2%, and most of GSP items (94%) were subject to zero rates. 74% of tariff lines of industrial products had zero rates (Kaminski, Wang and Winters, 1996b: 34).

[9]    Note that in a previous version of estimations without the SEE-3 the distance coefficients were of the same magnitude as in the Fugazza study and have doubled only after including the SEE-3 into the sample. This indicates higher trade costs (transport cost, tariffs, etc.) in trade with these countries.

geographical distance are twice those obtained by Fugazza (2004) with a larger and more heterogenous data set, which means that the trade flows between the old EU-15, new member states and other transition countries in our sample are comparatively more affected by trade costs[9]. There is not much variation in estimated coefficients over time, indicating the robust importance of transport costs for the export performance of individual countries. On the other hand, the coefficients for border dummies are about half the size of those obtained by Redding and Venables (2003) and Fugazza (2004) and decreasing over time. This indicates the importance of cross-border trade for transition countries, which diminished with the economic integration and economic development of these countries over the last decade. With closer integration into the EU economic area, and with high rates of productivity growth, the relative im-

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| lnDIST1 | ***-1,384 | ***-1,604 | ***-1,674 | ***-1,755 | ***-1,573 | ***-1,611 | ***-1,549 | ***-1,471 | ***-1,602 | ***-1,535 | ***-1,441 |
| | -7,42 | -8,49 | -9,63 | -9,65 | -9,06 | -9,83 | -9,51 | -9,5 | -10,29 | -10,06 | -9,94 |
| Border | 0,676 | 0,534 | 0,233 | 0,174 | 0,347 | 0,146 | 0,147 | 0,413 | 0,161 | 0,234 | 0,310 |
| | 0,99 | 0,77 | 0,36 | 0,26 | 0,54 | 0,24 | 0,25 | 0,73 | 0,28 | 0,42 | 0,58 |
| CZ | ***5,526 | ***6,623 | ***5,982 | ***5,756 | ***6,196 | ***6,072 | ***5,761 | ***4,831 | ***4,760 | ***4,526 | ***4,306 |
| | 7,67 | 9,09 | 8,86 | 8,2 | 9,24 | 9,57 | 9,13 | 8,14 | 7,93 | 7,69 | 7,62 |
| EE | ***-1,358 | -0,072 | -0,323 | -0,717 | *0,892 | **1,075 | 0,603 | -0,283 | -0,067 | -0,589 | ***-1,329 |
| | -2,69 | -0,14 | -0,68 | -1,46 | 1,90 | 2,42 | 1,36 | -0,68 | -0,16 | -1,43 | -3,35 |
| HU | ***5,308 | ***6,394 | ***5,658 | ***5,748 | ***6,172 | ***6,057 | ***5,657 | ***4,781 | ***4,675 | ***4,515 | ***4,300 |
| | 7,81 | 9,3 | 8,88 | 8,68 | 9,76 | 10,12 | 9,5 | 8,53 | 8,25 | 8,13 | 8,06 |
| LV | ***-1,348 | *-0,855 | *-0,774 | -0,394 | 0,685 | 0,252 | 0,291 | -0,564 | **-1,057 | -0,633 | *-0,783 |
| | -2,61 | -1,64 | -1,60 | -0,78 | 1,42 | 0,55 | 0,64 | -1,32 | -2,45 | -1,50 | -1,93 |
| PL | ***5,766 | ***6,849 | ***6,200 | ***6,136 | ***6,473 | ***6,578 | ***6,247 | ***5,311 | ***5,172 | ***5,054 | ***4,935 |
| | 8,16 | 9,59 | 9,37 | 8,93 | 9,85 | 10,58 | 10,11 | 9,13 | 8,79 | 8,76 | 8,91 |
| SK | **1,498 | 0,808 | ***4,683 | ***4,437 | ***4,814 | ***4,759 | ***4,409 | ***3,456 | ***3,317 | ***3,429 | ***3,233 |
| | 2,10 | 1,12 | 7,02 | 6,40 | 7,27 | 7,59 | 7,08 | 5,89 | 5,59 | 5,90 | 5,79 |
| SI | ***3,742 | ***5,386 | ***4,497 | ***4,505 | ***5,080 | ***4,990 | ***4,418 | ***3,439 | ***3,321 | ***3,328 | ***3,066 |
| | 5,64 | 8,03 | 7,23 | 6,98 | 8,23 | 8,54 | 7,61 | 6,29 | 6,01 | 6,14 | 5,89 |
| BG | ***3,166 | ***4,233 | ***3,378 | ***3,248 | ***3,389 | ***3,846 | ***4,099 | ***3,175 | ***3,055 | ***2,959 | ***2,745 |
| | 4,55 | 5,98 | 5,18 | 4,79 | 5,23 | 6,27 | 6,72 | 5,53 | 5,27 | 5,20 | 5,03 |
| CRO | ***3,627 | ***4,601 | ***3,978 | 3,941 | ***4,296 | ***4,101 | ***3,573 | ***2,712 | ***2,472 | ***2,353 | ***2,066 |
| | 5,37 | 6,73 | 6,28 | 5,99 | 6,83 | 6,89 | 6,04 | 4,87 | 4,39 | 4,26 | 3,90 |
| RO | ****4,618 | ***6,129 | ****4,932 | ***5,026 | ***5,174 | ****4,930 | ****4,665 | ***3,762 | ***3,682 | ***3,494 | ***3,372 |
| | 6,44 | 8,45 | 7,34 | 7,2 | 7,75 | 7,81 | 7,43 | 6,36 | 6,16 | 5,96 | 5,99 |
| ALB | | **2,519 | | *2,120 | **2,059 | | ***-2,896 | | ***-3,195 | | ***-3,506 |
| | | 2,19 | | 1,92 | 1,98 | | -2,89 | | -3,40 | | -4,15 |
| MK | *2,000 | ****4,158 | 1,567 | ****4,410 | ****4,681 | **2,226 | 0,366 | ***2,409 | -1,008 | **2,009 | **-1,775 |
| | 1,80 | 3,94 | 1,53 | 4,29 | 4,82 | 2,40 | -0,40 | 2,61 | -1,16 | 2,24 | -2,19 |
| SMN | -2,228 | | **-2,526 | | | ***2,580 | | ***3,143 | | ***3,107 | |
| | -1,94 | | 2,37 | | | 2,64 | | 3,29 | | 3,32 | |
| **Partner dummies** | | | | | | | | | | | |
| EU-15 | ***4,649 | ***4,918 | ***4,315 | ***4,370 | ***4,240 | ***4,090 | ***3,886 | ***3,542 | ***3,679 | ***3,776 | ***3,557 |
| | 9,59 | 10,05 | 9,53 | 9,28 | 9,41 | 9,61 | 9,18 | 8,86 | 9,12 | 9,55 | 9,41 |
| NMS-8 | ***1,950 | ***2,185 | ***2,113 | ***2,108 | ***1,974 | ***1,899 | ***1,888 | ***1,595 | ***1,708 | ***1,797 | ***1,794 |
| | 3,23 | 3,59 | 3,75 | 3,60 | 3,53 | 3,59 | 3,57 | 3,20 | 3,41 | 3,66 | 3,82 |
| CC-3 | ***1,993 | ***2,302 | *1,403 | *1,343 | *1,358 | 0,996 | 0,857 | 0,460 | 0,825 | *1,158 | **1,308 |
| | 2,43 | 2,78 | 1,82 | 1,68 | 1,78 | 1,38 | 1,18 | 0,68 | 1,21 | 1,73 | 2,04 |
| OECD | 3,619 | ***4,108 | ***4,140 | ***4,255 | ***3,787 | ***3,599 | ***3,364 | ***2,881 | ***3,197 | ***3,235 | **2,799 |
| | 9,98 | 11,22 | 12,22 | 12,06 | 11,25 | 11,34 | 10,63 | 9,65 | 10,62 | 10,95 | 9,91 |
| SEE-3 | ***-11,77 | ***-13,09 | ***-11,47 | ***-14,24 | ***-13,90 | ***-12,04 | ***-9,871 | ***-13,96 | ***-10,95 | ***-14,02 | ***-11,08 |
| | -12,50 | -14,78 | -13,22 | -16,70 | -17,06 | -15,30 | -12,87 | -17,60 | -15.00 | -18,20 | -16,15 |
| Const. | ***19,745 | ***20,200 | ***21,733 | ***22,538 | ***21,051 | ***21,662 | ***22,019 | ***22,782 | ***23,815 | ***23,419 | ***23,326 |
| | 12 | 12,12 | 14,19 | 14,06 | 13,75 | 14,99 | 15,33 | 16,69 | 17,35 | 17,41 | 18,25 |
| No. of obs | 1086 | 1088 | 1088 | 1087 | 1091 | 1094 | 1087 | 1086 | 1091 | 1089 | 1098 |
| Adj R-sq. | 0,626 | 0,646 | 0,674 | 0,663 | 0,668 | 0,674 | 0,664 | 0,677 | 0,687 | 0,691 | 0,720 |

**Table 3.**
Bilateral Ttrade eEquation eEstimation (with country and partner dummies) for
Transition Countries (period 1994-2004, OLS estimator)
Notes: ln(Xij) is log bilateral exports from country i to partner j plus one; ln(distij) is bilateral distance between countries i and j; borderij is a dummy for a common border. t-statistics in italics; ***, **, and * denote significance of parameters at 1%, 5% and 10%, respectively. Note that Lithuania is dropped from the table since it serves as a benchmark result for all transition countries, while on the other side dummies for three SEE countries are used (and dropped) from the sample interchangeably.

portance of transport costs might have decreased, allowing domestic firms to increasingly afford to bear the costs of shipping goods to non-neighbouring countries.

We introduce exporters and importer partners as fixed effects, Country$_i$ and Partner$_j$, where the former serve to control for supplier capacity, and the latter for foreign market capacity. Home countries' (i.e. exporters) parameters are mostly significant and do reveal positive increasing trends over time, indicating a rise in domestic supply capacities in most of the countries. One should interpret the home countries' effect with respect to the coefficients of the constant term. Since the constant term is returning an average level of bilateral trade flows, the individual country coefficients therefore indicate an individual country's positive or negative deviations from the average level of trade flows. In this context, one can realize that smaller and/or less developed countries (such as the Baltic and South East European countries) do exhibit lower levels of trade flows. Importer dummies indicate the importance of individual regions in terms of their importance as foreign markets for the exports of individual countries. In accordance with the process of trade liberalization with the EU in the 1990s, the EU market dominates over other importer dummies. The importance of other OECD countries is about 80% of the EU markets, while the importance of trade with the NMS-8 and the CC-3 is only about 30% to 40% of the EU markets. As expected, coefficients for the SEE-3 foreign market dummy are significant and exhibit very high negative coefficients, indicating the very low revealed importer market potential of these countries compared to most of the transition countries.

## 4.2. Accounting for Supply Capacity and Foreign Market Access

In the second step, the estimates obtained in the first stage of the analysis (estimates from model (1)) are used to construct supply capacity and foreign market access series. The supply capacity estimate for country i (SC$_i$) is given by the exponential of exporter country dummy times its coefficient:

$$(2) \quad SC_i = \exp(\gamma_i' Country_i)$$

While the foreign market access estimate (*FMAi*) is given by:

$$(3) \quad FMA_i = \sum_{i \neq j} \exp(\beta_j' Partner_j) * Dist_{ij}^{\lambda_1} * \exp(\delta_2' Bord_{ij})$$
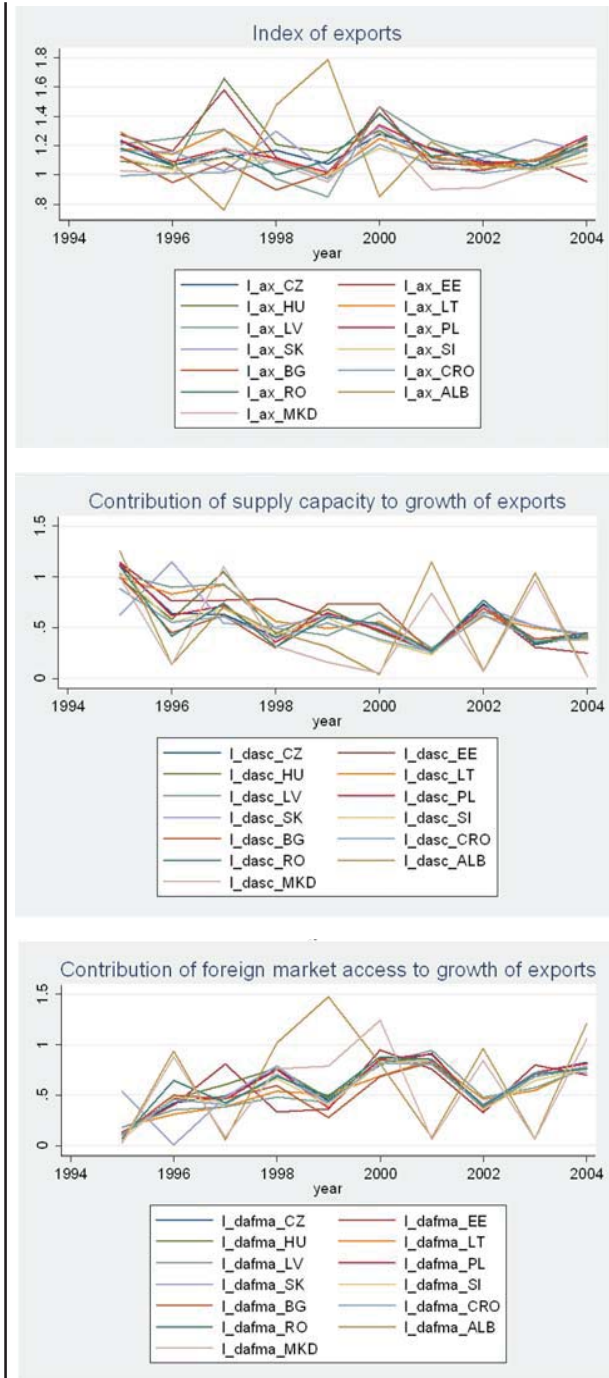


**Figure 1.**
Growth Index for Exports,
Supply Capacity and Foreign Market Access.

The estimates of supply capacity (2) and foreign market access (3) allow us to decompose the sources of export growth over the last decade and help us analyse over time the contributions of both the supply capacity as well as the foreign market access to the export performance of each individual transition country.

As revealed in Figure 1, the evolution of exports, supply ca-

| | Export Index | | | | | Contribution to Export Index ( in % ) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Supply Capacity Growth | | | | | Foreign Market Acess Improvement | | | | |
| | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 |
| Czech Republic | 1.31 | 1.31 | 1.37 | 1.29 | 1.33 | 93.6 | 41.4 | 45.4 | 37.9 | 19.4 | 6.4 | 58.9 | 54.6 | 62.1 | 80.6 |
| Estonia | 1.48 | 1.77 | 1.43 | 1.08 | 1.05 | 94.1 | 68.9 | 48.1 | 44.5 | 12.2 | 5.9 | 31.1 | 51.9 | 55.5 | 87.8 |
| Hungary | 1.15 | 2.01 | 1.50 | 1.19 | 1.21 | 91.9 | 49.8 | 44.1 | 37.6 | 21.2 | 8.1 | 50.2 | 55.9 | 62.4 | 78.8 |
| Lithuania | 1.51 | 1.28 | 1.24 | 1.41 | 1.29 | 93.5 | 71.1 | 44.2 | 30.0 | 32.5 | 6.5 | 28.9 | 55.8 | 70.0 | 67.5 |
| Latvia | 1.35 | 1.44 | 1.24 | 1.21 | 1.27 | 93.5 | 71.2 | 44.4 | 30.1 | 33.0 | 6.5 | 28.8 | 55.6 | 69.9 | 67.0 |
| Poland | 1.35 | 1.31 | 1.36 | 1.27 | 1.39 | 93.2 | 42.4 | 49.1 | 36.5 | 22.2 | 6.8 | 57.6 | 50.9 | 63.5 | 77.8 |
| Slovakia | 1.35 | 1.34 | 1.36 | 1.22 | 1.44 | 99.4 | 41.7 | 49.4 | 33.7 | 30.0 | 0.6 | 58.3 | 50.6 | 66.3 | 70.0 |
| Slovenia | 1.16 | 1.21 | 1.18 | 1.15 | 1.17 | 94.9 | 50.7 | 40.0 | 35.0 | 22.6 | 5.1 | 49.3 | 60.0 | 65.0 | 77.4 |
| Bulgaria | 1.07 | 0.98 | 1.44 | 1.15 | 1.32 | 88.1 | 40.2 | 73.9 | 35.9 | 24.2 | 11.9 | 59.8 | 26.1 | 64.1 | 75.8 |
| Croatia | 1.00 | 1.12 | 1.18 | 1.08 | 1.24 | 90.5 | 45.9 | 37.7 | 34.8 | 21.2 | 9.5 | 54.1 | 62.3 | 65.2 | 78.8 |
| Romania | 1.25 | 1.17 | 1.55 | 1.31 | 1.29 | 90.4 | 44.2 | 43.1 | 38.2 | 22.5 | 9.6 | 55.8 | 56.9 | 61.8 | 77.5 |
| Albania | 1.40 | 1.12 | 1.52 | 1.28 | 1.36 | 82.3 | 84.7 | 1.0 | 52.8 | 24.9 | 17.7 | 15.3 | 99.0 | 47.2 | 75.1 |
| Macedonia | 1.04 | 1.28 | 1.23 | 0.82 | 1.11 | 83.8 | 84.1 | 0.9 | 53.2 | 23.5 | 16.2 | 15.9 | 99.1 | 46.8 | 76.5 |
| Serbia and Montenegro | 1.00 | 1.00 | | 1.31 | 1.30 | 83.2 | 84.6 | | 53.0 | 24.8 | 16.8 | 15.4 | | 47.0 | 75.2 |
| **NMS-8** | **1.33** | **1.46** | **1.34** | **1.23** | **1.27** | **94.3** | **55.0** | **45.7** | **35.5** | **24.5** | **5.7** | **45.0** | **54.3** | **64.5** | **75.5** |
| **CC-3** | **1.11** | **1.09** | **1.39** | **1.18** | **1.28** | **89.7** | **43.6** | **52.2** | **36.4** | **22.7** | **10.3** | **56.4** | **47.8** | **63.6** | **77.3** |
| **SEE-3** | **1.22** | **1.20** | **1.37** | **1.14** | **1.26** | **82.9** | **84.4** | **0.9** | **53.0** | **24.5** | **17.1** | **15.6** | **99.1** | **47.0** | **75.5** |
| **All countries** | **1.24** | **1.31** | **1.36** | **1.20** | **1.27** | **91.2** | **58.5** | **40.3** | **39.2** | **24.1** | **8.8** | **41.5** | **59.7** | **60.8** | **75.9** |

**Table 4.**
Export Growth and Relative Contribution of Supply Capacity and Foreign Market Access Growth to Export Growth of NMS-8, CC-3 and SEE-3, 1994-2004
Notes: Bi-annual index of growth of exports, supply capacity and foreign market access, calculated from equations (2) and (3). Supply capacity and foreign market access growth are then recalculated so as to show their relative contribution to the growth of exports.

pacity and foreign market access are remarkably uniform across individual transition countries. There is some variation in the export figures around the common increasing trend of exports. The exception is the SEE-3, where oscillations are much higher and more persistent than those of other countries. Table 4 further demonstrates some differences in export performance within the transition countries. Over the periods of 1994-96, 1996-98 and 2000-2002, the group NMS-8 has increased its exports at a faster pace (33%, 46% and 23% respectively) than the CC-3 (11%, 9% and 18% respectively) and the SEE-3 (22%, 20% and 14% respectively). In the last analysed period of 2002-2004, all three groups of countries converged at similar growth rates for exports (27%, 28% and 26% in terms of bi-annual growth rates).

Table 4 shows that the contribution of foreign market access to transition countries export growth has been constantly increasing and vice versa is true for supply capacity. Until 1998, supply capacity increase was more important for export growth than foreign market access improvements, yet later on the situation changed. If over 1994-96 the contribution of improved foreign market access to the export growth of transition countries was only 8.8% and of supply capacity growth as much as 91.2%, by 2002-04 the contribution of market access increased to 75.9% and of supply capacity decreased to 24.1%. It seems that the opening up

of foreign markets for transition countries has needed quite some time before producing genuine impact. This is true for all three groups of transition countries.[10]

Over the period 1994-2000, there were considerable differences among individual groups of countries in terms of the respective contribution of market access and supply capacity. As time passed, the differences diminished. Between 2002-2004 there were almost no differences in terms of export growth (export index of 1.27, 1.28 and 1.26, respectively for NMS-8, CC-3 and SEE-3), the contribution of foreign market access (75.5%, 77.3% and 75.5%, respectively) and supply capacities (24.5%, 22.7% and 24.5%, respectively).

The data suggest that, until 2004, the NMS-8, CC-3 and SEE-3 have become very similar in terms of the contribution of foreign market access to their export growth. Further disaggregating of foreign market access to individual groups of importing countries, however, shows considerable differences between transition countries. Table 5, which decomposes foreign market access into five regional components (EU-15, NMS-8, Cyprus and Malta, CC-3, non-EU OECD countries, and SEE), demonstrates that access to the EU-15 has contributed much more to the overall market access growth of the NMS-8 as compared to the CC-3. On the

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[10]    There are some irregularities in the trends for the SEE-3, which is due to problems with the data

| | Contribution of | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | EU – 15 | | | | | NMS-8, Cyprus and Malta | | | | | CC-3 | | | | |
| | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 |
| Czech Republic | 73.7 | 76.7 | 73.9 | 73.1 | 73.0 | 8.5 | 8.5 | 10.6 | 11.4 | 13.2 | 1.1 | 1.2 | 1.4 | 1.6 | 2.2 |
| Estonia | 90.7 | 90.1 | 89.7 | 90.1 | 86.7 | 2.9 | 3.5 | 4.2 | 4.2 | 6.4 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 |
| Hungary | 51.2 | 55.8 | 54.5 | 52.8 | 53.9 | 12.0 | 12.2 | 15.0 | 16.1 | 18.3 | 2.5 | 2.9 | 2.9 | 3.4 | 5.0 |
| Lithuania | 50.1 | 54.1 | 54.4 | 52.3 | 53.0 | 16.0 | 16.6 | 18.7 | 20.5 | 23.5 | 0.9 | 1.0 | 1.1 | 1.3 | 1.9 |
| Latvia | 61.5 | 63.8 | 63.6 | 62.0 | 60.5 | 15.3 | 15.8 | 17.6 | 19.3 | 22.4 | 0.5 | 0.6 | 0.7 | 0.8 | 1.2 |
| Poland | 58.8 | 62.1 | 62.2 | 60.4 | 60.1 | 13.1 | 13.4 | 15.7 | 17.1 | 19.8 | 1.3 | 1.4 | 1.6 | 1.8 | 2.5 |
| Slovakia | 88.4 | 88.8 | 86.2 | 86.5 | 84.0 | 4.2 | 4.6 | 6.1 | 6.2 | 8.4 | 0.6 | 0.7 | 0.9 | 1.0 | 1.5 |
| Slovenia | 58.8 | 63.6 | 61.4 | 58.9 | 59.8 | 6.8 | 6.8 | 9.0 | 9.4 | 10.5 | 10.0 | 10.3 | 9.7 | 12.1 | 14.6 |
| Bulgaria | 19.1 | 24.7 | 27.3 | 25.0 | 31.3 | 2.2 | 2.6 | 4.0 | 4.0 | 5.6 | 1.9 | 2.4 | 2.6 | 3.0 | 4.8 |
| Croatia | 40.9 | 44.6 | 46.5 | 44.0 | 44.9 | 19.3 | 19.9 | 22.9 | 25.0 | 28.0 | 0.6 | 0.7 | 0.8 | 0.9 | 1.3 |
| Romania | 28.8 | 34.5 | 37.1 | 34.7 | 39.4 | 3.8 | 4.4 | 5.7 | 6.0 | 7.8 | 3.6 | 4.4 | 4.2 | 5.1 | 7.5 |
| Albania | | | | | | 2.7 | 3.4 | 5.3 | 5.0 | 7.3 | 7.6 | 9.1 | 11.6 | 12.9 | 18.6 |
| Macedonia | | | | | | 4.6 | 5.6 | 8.2 | 7.8 | 10.5 | 11.8 | 14.8 | 15.3 | 17.4 | 25.5 |
| Serbia and Montenegro | | | | | | | | | 5.1 | 7.7 | | | | 11.4 | 18.8 |
| **NMS-8** | **63.8** | **69.8** | **68.3** | **66.3** | **66.9** | **10.8** | **9.7** | **12.0** | **13.4** | **15.1** | **1.9** | **2.3** | **2.3** | **2.7** | **3.6** |
| **CC-3** | **28.6** | **34.7** | **38.7** | **34.4** | **38.5** | **7.5** | **9.0** | **11.8** | **11.3** | **13.7** | **2.1** | **2.5** | **2.6** | **3.1** | **4.5** |
| **SEE-3** | | | | | | **3.5** | **4.6** | **6.6** | **5.7** | **8.4** | **9.3** | **12.2** | **13.2** | **13.4** | **20.7** |
| **All countries** | **39.6** | **61.7** | **49.5** | **54.9** | **54.9** | **7.3** | **8.4** | **9.8** | **10.4** | **11.9** | **3.9** | **2.6** | **4.7** | **3.9** | **6.5** |

| TABLE 5; Continuation | Contribution of | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Non-EU OECD countries | | | | | South East Europe | | | | | TOTAL | | | | |
| | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 | 1994-1996 | 1996-1998 | 1998-2000 | 2000-2002 | 2002-2004 |
| Czech Republic | 13.0 | 10.7 | 11.0 | 10.8 | 9.1 | 3.7 | 3.0 | 3.1 | 3.1 | 2.5 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Estonia | 5.6 | 5.6 | 5.3 | 4.9 | 5.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Hungary | 27.9 | 23.8 | 22.1 | 22.2 | 18.4 | 6.5 | 5.3 | 5.6 | 5.5 | 4.3 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Lithuania | 29.1 | 24.9 | 22.6 | 22.8 | 19.0 | 3.9 | 3.3 | 3.2 | 3.2 | 2.7 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Latvia | 20.1 | 17.5 | 16.0 | 15.8 | 13.9 | 2.5 | 2.2 | 2.2 | 2.1 | 1.9 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Poland | 24.0 | 20.7 | 18.3 | 18.5 | 15.8 | 2.8 | 2.3 | 2.3 | 2.3 | 1.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Slovakia | 5.2 | 4.7 | 5.3 | 4.9 | 4.8 | 1.5 | 1.3 | 1.5 | 1.4 | 1.4 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Slovenia | 21.0 | 16.7 | 17.1 | 16.9 | 13.0 | 3.4 | 2.7 | 2.8 | 2.7 | 2.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Bulgaria | 28.8 | 27.6 | 26.8 | 26.7 | 24.7 | 48.1 | 42.7 | 39.4 | 41.3 | 33.6 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Croatia | 31.6 | 28.3 | 23.5 | 23.9 | 20.7 | 7.6 | 6.4 | 6.4 | 6.3 | 5.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Romania | 45.7 | 41.4 | 37.8 | 38.6 | 33.1 | 18.1 | 15.3 | 15.2 | 15.6 | 12.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Albania | 15.9 | 16.1 | 18.2 | 16.6 | 15.3 | 73.8 | 71.4 | 64.8 | 65.5 | 58.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Macedonia | 49.1 | 44.7 | 46.3 | 44.3 | 35.3 | 34.5 | 34.8 | 30.3 | 30.5 | 28.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Serbia and Montenegro | | | | 19.7 | 17.2 | | | | 63.7 | 56.3 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **NMS-8** | **20.1** | **15.4** | **14.7** | **14.9** | **12.2** | **3.3** | **2.8** | **2.7** | **2.6** | **2.2** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| **CC-3** | **35.5** | **32.7** | **30.4** | **30.1** | **26.2** | **26.3** | **21.1** | **16.5** | **21.2** | **17.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| **SEE-3** | **29.4** | **31.5** | **30.7** | **24.3** | **21.8** | **57.9** | **51.7** | **49.4** | **56.5** | **49.1** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| **All countries** | **25.1** | **18.5** | **20.1** | **17.4** | **15.3** | **24.1** | **8.8** | **15.8** | **13.3** | **13.4** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

**Table 5.**
Contributions of Individual Country Groups to Foreign Market Access Growth of NMS-8, CC-3 and SEE-3, 1994-2004 (in %)
Note: Contribution of individual groups of countries is calculated from bi-annual index of growth of foreign market access
from equation (3), weighted by the share of individual group of countries in total exports.

other hand, the contribution of the EU-15 to the growth of the overall market access of the CC-3 is gradually increasing, while in the case of the NMS-8 it has stagnated at high levels. Obviously, the EU integration process is an important determinant of market access to the EU-15, and one can expect that the CC-3 and the SEE-3 will further benefit from this process in the future. The non-availability of data does not allow us to make any conclusions about the actual importance of EU-15 market access for the SEE-3. What is obvious is that market access for South East Europe has made an important contribution to their overall market access growth. This may even increase in the future, due to the recent participation of South East European countries in the CEFTA.

The main question of our exercise concerned the importance of EU-15 market access to the export performance of transition countries. The answer is that market access growth represents the main determinant of export growth for all the groups of transition countries. Additionally, the

importance of market access growth for the export growth of these countries is constantly increasing. In terms of market access growth, the EU-15 contribute the main part, about two thirds in the case of the NMS-8 and almost 40% in the case of the CC-3. Better EU-15 market access can then largely explain the better export performance of the NMS-8. Further EU integration processes may bring similar benefits to the CC-3 and the SEE-3.

## 5. Conclusion

This paper looked at changes in EU market access and the impressive growth in export performance among transition countries. Based on the relevant theoretical concepts, we follow the approach of Redding and Venables (2003, 2004), and Fugazza (2004), which decompose the export performance of individual countries into foreign market access and internal supply capacity components. More precisely, we build an econometric gravity-type model to assess the contributions of market access (in general and to EU-15) versus supply capacity improvement to increasing the export performance of transition countries. We find that the contribution of foreign market access to transition countries export growth has been constantly increasing and vice versa is true for supply capacity. Until 1998, supply capacity increase was more important for export growth than foreign market access improvements, yet later on the situation changed. Until 2004, the NMS-8, CC-3 and SEE-3 have become very similar in terms of the contribution of foreign market access to their export growth. This is not the case however, where market access to the EU-15 is concerned. Improving access to EU-15 markets has been much more important to the overall foreign market access growth of the NMS-8 as opposed to the CC-3.

To answer the question of how important EU-15 market access has been for the improved export performance of transition countries several assertions can be made. Market access growth represents the main determinant of export growth among all the groups of transition countries reviewed in this paper. Additionally, the importance of foreign market access growth for the export growth of transition countries is constantly increasing. In terms of market access growth, the EU-15 contribute the better part, about two thirds in the case of the NMS-8 and almost 40% in the case of the CC-3. Better EU-15 market access then can largely explain the better export performance of the NMS-8. Further EU integration processes may bring similar benefits to the CC-3 and the SEE-3.

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# The Performance of Turkish Manufacturing Firms in Stable And Unstable Economic Periods

Nizamettin Bayyurt

## Abstract

*Generally, profitability is used to evaluate the performance of companies. Yet performance is a multidimensional concept, and therefore a single indicator is incapable of adequately defining its various aspects and providing a clear perspective on the critical mission of organizations. The measurement of the performance of a company is the evaluation of the level of attainment of the company's aims. Many factors can affect such aims. Companies must determine their own critical performance indicators and discover the relations between these indicators for optimal management and progress. The aim of this study is to discuss these business performance indicators, the relations between performance indicators and the factors that affect these indicators in the Turkish manufacturing industry, and to discuss how these relations vary during economically stable and unstable periods.*

*Key words: Performance Measurement, Canonical Correlation, Turkish Manufacturing Industry*

**JEL : L21, L25, L20**

## 1. Business Performance and Performance Indicators

Various definitions of performance exist in business literature. Amaratunga, et al., (2000) defines performance for an organization as the manner or quality of its functioning. According to Akal (1996), performance is a concept that describes the qualitative or quantitative results of activities. Chin, et al., [2003] measures performance by the evaluation of the efficiency and productivity of the organization, while Neely et al., (1995) describe performance measurement as a process of quantifying the efficiency and effectiveness of action that leads to performance. Performance can be defined as the ability to achieve a task, or evaluation of the level of the attainment of the organization's aims.

An organization's aims depend on whether it is in the public or private sector. The benefits of the public are not considered as much by private organizations as public ones. Increased prices, layoffs, and lower wages in privatized companies are evidence of this (La Porta, De-Silanes, 1999).

Different performance criteria have been used in literature,

including effectiveness, efficiency and rate of utilization, productivity, quality of work life, profitability, quality and innovation. Since these variables are independent of one other, managers should decide which ones to consider in measuring business performance with respect to the goals and priorities of the firm (Akal, 1994)

A company is an economic enterprise and its basic goal, with the exception of charitable corporations, is to maxi-

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mize profit. Kald and Nilson (2000) indicated that performance is a means of profitability. But the maximization of profitability cannot be the only goal of companies, because that can be achieved by selling shares or investing in bonds while earnings per share decrease. Maximization of earning per share is another aim of a company. Yet earning per share does not consider the risk, period, and timing of the expected income. The maximization of market value of a company for shareholders is another aim (Brigham, Ehrhardt, 2002). While growth can also be viewed an aim, many companies once prone to growth have gone bankrupt. Productivity is one of the most important aspects of the economic life of a society. It is crucial for the survival and prosperity of firms. Therefore, productivity is one of the main goals of companies. Kaplan and Norton recognize that a single measure of performance cannot offer a comprehensive perspective of the critical mission of an organization (Kaplan, Norton, 1996). As a result, business performance must be evaluated with multidimensional perspectives. In this study, the four measures of profitability, productivity, stock returns and growth are used to evaluate the business performance of the Turkish manufacturing industry.

The performance of the firms were affected by many factors, such as the financial structure of the organization, management style, quality, innovation, research and developments (Shaker, Covin, 1993 and 1995), debts (Toy et. al., 1974), (Opler and Titman, 1994), cash flow (Salmi et. al., 1997), firm size (Günçavdı et. al., 1999), environmental situations like dynamism, complexity, hostility (Luo, Park, 2001), and some unobservable factors like corporate culture, access to scarce resources, management skill and luck (Jacobson, 1990).

In this study, the relations between performance and predictor variables in the Turkish manufacturing industry during both economically stable and unstable times were investigated and compared by multivariate statistical analyses.

## 2. The Method

Canonical correlation was used for the analysis. It seeks to identify and quantify the associations between two sets of variables (Johnson, Wichern, 2002). It is the most general method that can be used for both the metric and non-metric values of the sets Y (dependent, criterion) and X (independent, predictor) (Hair et al., 1998). While canonical correlation is used for explaining the relation between dependent and independent variables, it explains not only which independent variable has an effect on which dependent variable, but also which independent variable has a greater effect on specific dependent variables (Levine, 1977). It is similar to multiple regression analysis, except that there are several variables on both sides of the equation, optimally weighted and combined in a linear fashion to produce the highest correlation between the linear composites of the two-variable sets. The formulation is as follows. $u = a'x$ and $v = \gamma'y$ are the linear composites of the sets of the variables, where $a$ and $\gamma$ are the coefficients similar to the coefficients of linear regression.

$$Max\,Kor(u,v) = \frac{Kov(u,v)}{[var(u)\,var(v)]^{1/2}} = \frac{\alpha'\Sigma_{12}\gamma}{\sqrt{\alpha'\Sigma_{11}\alpha}\sqrt{\gamma'\Sigma_{22}\gamma}} = \frac{Kov(u,v)}{(1\;\;1)^{1/2}} = Kov(u,v) = \alpha'\Sigma_{12}\gamma = \rho$$

Subject to

$$Var(u) = E[u - E(u)][u - E(u)]' = \alpha'Kov(x)\alpha = \alpha'\Sigma_{11}\alpha = 1$$

$$Var(v) = E[v - E(v)][v - E(v)]' = \gamma'Kov(y)\gamma = \gamma'\Sigma_{22}\gamma = 1$$

The optima of the function are found by means of Lagrange Multipliers $\lambda_1$ and $\lambda_2$. The Lagrange function L and its optima are written as follows;

$$L = \alpha'\Sigma_{12}\gamma - \frac{1}{2}\lambda_1(\alpha'\Sigma_{11}\alpha - 1) - \frac{1}{2}\lambda_2(\gamma'\Sigma_{22}\gamma - 1)$$

$$\frac{\partial L}{\partial \alpha} = \Sigma_{12}\gamma - \lambda_1\Sigma_{11}\alpha = 0$$

$$\frac{\partial L}{\partial \gamma} = \Sigma_{21}\alpha - \lambda_2\Sigma_{22}\gamma = 0$$

The solution of these partial differentials results in an eigenvalue problem. The solution of that problem gives $p^2$. The vectors $a$ and $\gamma$ can be obtained from the equations by substituting $p^2$. These vectors are called canonical coefficients and maximize the linear combinations of the variables.

## 3. The Research

The firms included in this research were chosen from the Istanbul Stock Exchange's (ISE) list of traded companies in 1996-1997 and 2001-2002. These firms are also among Turkey's top 1000 major manufacturing companies. Data was collected from the journals of the Istanbul Chamber of Industry (ICI) and the Year Books of Companies of the ISE. The research consisted of two parts. In the first, 120 manufacturing firms were randomly selected from the top 1000 manufacturing firms in the industry. 17 firms were taken out as outliers using a 5% level of significance by a test of Mahalanobis Distance. Canonical correlation was applied to the sample size of 103 firms in 1997, an economically

stable period in Turkey. In the second part, canonical correlation analysis was applied to the data of the same firms with the same variables for the year 2002, during which Turkey was economically unstable. The sample size was 68 for the second part, as some of the firms included in the first analysis, due to the economic crises of November 2000 and February 2001, had either gone bankrupt or been removed from the list issued by the ICI of Turkey's top 1000 major manufacturing companies. Finally the results were compared. When the first analysis was applied to the sample of 68 firms used in the second part, there was no change in the results of the analysis. Therefore, the sample size had not been narrowed.

## 4. Study Variables

The business performance of Turkish manufacturing companies was measured by profitability (net profit margin), productivity (gross value added per employee), growth (value added growth rates), and stock returns (market value / book value; mv/bv). Value added growth rates for both terms were deflated by the inflation rates given by the State Institute of Statistics of Turkey in 1997 and 2002. Predictor (independent) variables that were thought to affect business performance used in this research included current ratio (total current assets / total current liabilities), leverage (total liabilities / total assets), cash flow ratio (profit before tax + depreciation + expenses not requiring cash outflow / short term debt + long term debt), firm size, machinery plant & equipment per employee (mac & eqp), inventories turnover, and research and development (R&D).

Assets, shareholders equity, value added or sales can be used to measure firm size. Spearman rank correlations show high correlations between the ranks of the firms according to these four variables ($p < 1 \times 10^{-4}$) for both of the terms. This shows that any one of these four variables can be used for firm size. In this research, the average of the ranks of the firms was used to reflect the effects of all the variables. The largest 48 firms were represented by 1 and the remaining 55 firms by 0 in 1997. In the second term, 30 firms were represented by 0 and the 38 firms left by 1. Similarly, dummy variables were used for the firms that either have or lack R&D investments, respectively. Machinery plant & equipment per employee was used to measure the level of technology and industrialization of the firms.

## 5. Results of Analysis

For the analysis the SAS System for the Windows V8 statistical package was used. Table 1 displays the means and standard deviations of the variables for both of the years. Two economical crises took place in Turkey, one in November 2000 and the other in February 2001. Many small and large firms were affected by these crises. Interest rates inceased rapidly, production capacity rates decreased, bankruptcies were seen in many areas and unemployement increased. With the acceptance of a fluctuating currency rate in February 2001, firms that were already in debt extremly were driven into it further because of the rise in foreign currency, leading to many difficulties with solvency. Consequently, the year 2002 was economically unstable. When the two years are compared, it can be seen from Table 1 that growth and profitability were negative in 2002. Even though all the positive measures for firms decreased in 2002, leverages which are the debt indicator of firms increased.

| Variables | 1997 | | 2002 | |
|---|---|---|---|---|
| | Mean | St.Dev | Mean | St.Dev |
| Growth (%) | 7,28 | 33,11 | -20,62 | 151,43 |
| Profitability (%) | 9,41 | 8,10 | -12,89 | 83,40 |
| Productivity ($10^{12}$ TL) | 6,07 | 5,49 | 0,05 | 0,041 |
| MV/BV | 5,36 | 3,50 | 3,60 | 8,40 |
| Current Ratio | 1,79 | 0,69 | 1,61 | 0,84 |
| Inventory Turn. | 7,28 | 8,44 | 5,93 | 3,39 |
| Cash Flow (%) | 40,83 | 43,38 | 29,74 | 32,82 |
| Size | 0,47 | 0,50 | 0,52 | 0,50 |
| Mac&Eqp ($10^9$ TL) | 6,60 | 6,31 | 5,98 | 8,63 |
| Leverage (%) | 53,74 | 17,61 | 76,20 | 85,13 |
| R&D | 0,39 | 0,49 | 0,12 | 0,57 |

**Table 1.**
Summary of Performance and Predictor
Variables in 1997 and 2002
31 December 1997, 205.000 TL ~ 1$
31 December 2002, 1.630.000 TL ~ 1$

After removing outliers, the normality of the variables were tested by Shapiro-Wilk, Kolmogorov-Smirnov, Skewness and Kurtosis tests. Tests failed to find a 5% level of significance among the variables except for growth and leverage. Transformations helped the variables to pass the tests. Since there is no great difference in the results of canonical correlations between the original and transformed variables, the

original variables were preferred in the interpretation.

Multicollinearity becomes a problem when the variance inflation factor is greater than 10, the condition index is more than 100, or tolerance is less than 0,10. All the tests show that multicollinearity was not a problem for either the dependent or independent variables for both terms.

| | 1997 | | | | 2002 | | | |
|---|---|---|---|---|---|---|---|---|
| | Growth | Produc | Profit | MV / BV | Growth | Produc | Profit | MV / BV |
| R&D | -0.15 | 0.06 | 0.03 | 0.03 | 0.02 | 0.08 | -0.08 | -0.03 |
| Curr.Rat | 0.04 | 0.04 | 0.50* | 0.06 | 0.01 | 0.46* | 0.36* | -0.13 |
| Inv.Turn | 0.13 | 0.20** | 0.10 | 0.15 | -0.05 | 0.13 | 0.16 | -0.02 |
| Leverage | -0.14 | -0.27* | -0.62* | 0.05 | -0.06 | -0.52 | -0.75* | 0.31* |
| Cashflw | 0.17 | 0.44* | 0.87* | 0.30* | 0.02 | 0.54* | 0.15 | -0.09 |
| Size. | 0.05 | 0.42* | 0.30* | 0.00 | 0.09 | 0.41* | 0.41* | -0.02 |
| MacEqp | 0.04 | 0.49* | 0.27* | 0.00 | 0.08 | 0.29* | 0.05 | -0.01 |

**Table 2.**
PearsonCorrelations Between Performance and PredictorVariables
*significant at p<0,01
** significant at p<0,05

Table 2 gives the results of the Pearson Correlation Coefficients. According to the table in 1997, there is no correlation between growth and any other variable in the analysis at a 5% level of significance. There is a highly significant positive correlation between productivity and cash flow, size, mac&eqp and inventory turnover. The correlation is highly significant and negative between productivity and leverage. Profitability has highly significant positive correlations with cash flow, mac&eqp, current ratio, and firm size and a negative correlation with leverage. MV/BV has a positive correlation with cash flow. The table in 2002 shows that there is no correlation between growth and any other variable at a 5% level of significance. Highly significant correlations exist between productivity and cash flow, leverage, current ratio, size and mac&eqp. The correlation between productivity and leverage is negative, while other correlations are positive. There is a highly significant negative corelation between profitability and leverage. Highly significant positive correlations are obtained between profitability, firm size and current ratio. There is a positive correlation between MV/BV and leverage.

| Variate Number | Canonical Correlation | R-Squared | F/Value | Num DF | Den DF | Prob Level | Wilks Lambda |
|---|---|---|---|---|---|---|---|
| **1997** | | | | | | | |
| 1 | 0.89 | 0.79 | 9.90 | 28 | 333 | 1x10$^{-6}$ | 0.11 |
| 2 | 0.57 | 0.32 | 3.61 | 18 | 264 | 2x10$^{-6}$ | 0.54 |
| 3 | 0.41 | 0.17 | 2.36 | 10 | 188 | 0.01 | 0.79 |
| 4 | 0.23 | 0.05 | 1.34 | 4 | 95 | 0.26 | 0.95 |
| **2002** | | | | | | | |
| 1 | 0.73 | 0.53 | 2.44 | 28 | 207 | 1.9x10$^{-4}$ | 0.36 |
| 2 | 0.41 | 0.17 | 0.92 | 18 | 165 | 0.56 | 0.76 |
| 3 | 0.28 | 0.08 | 0.51 | 10 | 188 | 0.88 | 0.92 |
| 4 | 0.05 | 0.00 | 0.04 | 4 | 60 | 0.99 | 0.99 |

**Table 3.**
Canonical Corelations and Significance Levels Between Performance and Predictor Variables in 1997 and 2002

Table 3 displays canonical correlations and their significance levels between performance variables and the predictor variables. The first canonical variates reflect the best situation in which the independent set explains the most variation in the dependent set and vice versa. Therefore, researchers generally prefer to interpret the first canonical variates. The first canonical correlations are very high and highly significant in both 1997 (R=0,89, p=10-6) and in 2002 (R=0,73, p=1,92x10$^{-4}$).

Canonical coefficients, canonical loadings or canonical cross loadings are interpreted to determine the relations between dependent and independent variables. Since canonical coefficients can be misleading when multicollinearity appears in one of the sets, generally, loadings or cross loadings are prefered (Table 4). In this table, the most important canonical loadings and cross loadings are shown. According to the table, the canonical variate of the dependent set is a linear combination of the variables; growth, productivity, profitability and MV/BV and all the variables are positively correlated with the first canonical variate in 1997. Profitability, which has the highest correlation with the first canonical variate (R=0,99), is the most important variable. Productivity (R=0,58), MV/BV (R=0,33) has significant loadings to the canonical variate but growth (R=0,19) does not. Aside from leverage, the other variables in the predictor set have positive loadings to their first canonical variate. The most important variable in this set is

cash flow (R=0,98), followed by leverage (R= -0,67), current ratio (R=0,52), size (R=0,37), and mac&eqp (R=0,36). Inventory turnover (R=0,14) and R&D (R=0,04) have no significant loadings to their canonical variate. The variables that have positive (or negative) correlations with their canonical variate have positive correlations with each other, while the variables that have corelations in opposite directions have negative correlations with each other. Thus, leverage has negative correlations with performance variables and the other variables in the predictor set have positive correlations with performance variables. According to the table, in 2002, when the first canonical loadings were interpreted, the most important variables in the set of predictor variables are leverage (R= -0,82), cash flow (R=0,82), current ratio (R=0,66) and firm size (R=0,54). Mac&Eqp (R=0,23), inventory turnover (R=0,11) and R&D (R=0,05) have no significant loadings to their canonical variate. The most important variables in the set of performance variables highly loading to their canonical variate are profitability (R=0,88) and productivity (R=0,84). The loadings of MV/BV (R=0,28) and growth (R=0,22) are not highly significant. Profitability and productivity have negative correlations with leverage and positive correlations with cash flow and current ratio.

When the results of 1997 and 2002 analysis are compared, for both terms profitability and productivity were important variables in measuring business performance. Although the contribution of MV/BV to its canonical variate decreased in 2002, the contribution of firm size and current ratio to their canonical variate increased. Growth was not an important performance variable for either term. While profitability was a more highly significant variable than other performance variables set in 1997, productivity was as significant as profitability in 2002. The variables in the predictor set that most affect business performance in both terms were cash flow, leverage, current ratio, and firm size. While cash flow was the most significant variable in the predictor set in 1997, leverege was as significant as cash flow in 2002. Mac&Eqp was one of the important variables in 1997, but it was less important in 2002. R&D and inventory turnover ratio were not significant in either term.

## 5. Discussion

The results of the study show that business performance can only be explained by profitability in stable times and profitability and productivity in unstable times. Profitability is a measurement of the sales performance of a firm. Cash flow ratio, the most important variable in the set of predictor variables, revealed its importance for decision makers. Cash flow is the ability of the company's cash reserves to cover a company's debts. In the long term, the ability to fulfill these responsibilies depends on profitability and debt. This ability allows for survival in unusual times. Cash reserves are also important providing raw materials and equipment in convenient conditions, and to utilize cash discounts for suitable investment opportunities.

Leverage ratio shows the extent to which debt is used in financing the company's total assets. An increase in this ratio means that the debt and the risk level of the company have increased. This causes a high interest rate risk in receiving credits. It is assumed that 50% of leverage rates are generally normal (Bolak 1998). A firm with a high earnings rate would maintain a relatively lower debt ratio because of its ability to finance itself from internally generated funds. Therefore, a negative correlation arises between debt ratio and profitability.

The value of current ratio shows the ability of the company's total current assets to cover its short term obligations. A high current ratio is beneficial for companies paying short term debts, but very high values indicate that the company has idle funds which are not being used productively. Gen-

| | 1997 | | 2002 | |
|---|---|---|---|---|
| | **Loadings** | **Cross Loadings** | **Loadings** | **Cross Loadings** |
| | **V1** | **U1** | **V1** | **U1** |
| Growth | 0.19 | 0.17 | 0.22 | 0.16 |
| Productivity | 0.58 | 0.52 | -0.84 | -0.61 |
| Profitability | 0.99 | 0.88 | -0.88 | -0.64 |
| MV/BV | 0.33 | 0.30 | 0.28 | 0.20 |
| | **U1** | **V1** | **U1** | **V1** |
| R&D | 0.04 | 0.04 | -0.06 | -0.04 |
| Curr.Ratio | 0.52 | 0.46 | -0.66 | -0.48 |
| Invt.Turn | 0.14 | 0.12 | -0.11 | -0.08 |
| Leverage | -0.67 | -0.60 | 0.82 | 0.60 |
| Cash Flow | 0.98 | 0.87 | -0.82 | -0.60 |
| Size | 0.37 | 0.33 | -0.54 | -0.39 |
| Mac & Eqp. | 0.36 | 0.32 | -0.23 | -0.17 |

**Table 4.**
Canonical Loadings and Cross Loadings in 1997 and 2002

erally, a current ratio of 2 is assumed to be sufficient (Helfert, 1977). In developing countries, because banks prefer to give short term debts, a current ratio of 1.5 is considered acceptable. The mean of current ratios in this study were 1.78 and 1.61 in 1997 and 2002, respectively. This ratio is positively related to business performance. While current ratio has significant correlation only with profitability in 1997, it had significant correlation with both profitability and productivity in 2002.

This study determined that there was a positive correlation between profitability and firm size, and a positive correlation between profitability and mac&eqp. In competitive areas large firms have more advantages than small firms. Because they have large market shares, they earn more. Large firms can work without high competition in areas where high equity is necessary; this provides more profitability. Large firms are more innovative; spend more on technical innovation (Co, Chew, 1997) and more professionals. Technology investments reduce costs, increasing profitability. In addition, growth in sales decreases unit costs, increasing profitability.

There are contradicting publications in literature concerning the relation of profitability to firm size. While Hall and Weiss (1967), Schmalensee (1989), Lirely (2000), Fink and Koller (2002) mention the positive relation of firm size to profitability, Osborn (1970), Elliot (1972), Toy (1974), Dhawan (2001), claim a negative relation. In Kaen and Baumann's (2003) study, for nearly half of the manufacturing firms examined, profitability increases declined as firms became larger. For most of the remaning manufacturing firms, no relation existed between size and profitability. They also found that profitability is negatively correlated with the number of employees for firms of a given size measured in terms of total assets and sales.

There was a positive correlation between productivity and firm size, mac&eqp, cash flow and inventory turnover ratio, and a negative correlation between productivity and leverage ratio. Technology investments provided more products with less manpower. Large firms spent more on mac&eqp. In the manufacturing industry, technology and innovation investments improved productivity in services and operations. In this study, no correlation was found between R&D and profitability, R&D and productivity. This was an unexpected result, because innovation is the main strength of companies in competative areas and R&D reflects this strength. The studies that were done in this area show that R&D expenses have a positive impact on business perfor-

mance. Co and Chew (1997) determined that firms with above- average sales growth had above-average R&D intensity and vice versa. Blundell, et. al., (1995) determined by using the data between 1972 and 1982 that there was a positive correlation between market share and R&D expenditures in the British manufacturing industry. The same correlation was confirmed by Hall and Vopel (1997) by using the data between 1987 and 1991 for American manufacturing firms. In our study, 63 of 103 firms in 1997 and 61 of 68 firms in 2002 had no R&D investments. This explains the absence of any correlation between R&D and firm performance. R&D investments are not profitable in the short term. It is a long term process. Rapid improvements in information and technology in the modern age requires permanent investment in information and technology. Due to the insufficient resources and lack of communication between universities and industry, an R&D tradition could not be established in Turkey (Oktay, 1998).

From the relations between productivity and leverage, firm size, mac&eqp., it is possible to draw the conclusion that because large firms are found to be less risky, they can receive credit with lower interest rates, and that because small firms can only obtain credit with high interest rates, their production costs become excessive and their productivity decreases. The existing literature on the positive relationship between productivity and leverage asserts that increased debt can lead to an increased managerial effort in operating the firm by additional investment in tangible assets, thus increasing productivity (Anderson, Prezas, 1999). Also, firms that experience the disciplinary effects of debt will manage their tangible assets more efficiently and will have more productive workers (Winn, 1997). Other factors that have effects on productivity include the education, skill and capacity of workers, and openness to new investments (Haris, 1999). Fortine and Helpman (2004), Brynjolfsson and Hitt (2000) determined the direct impact of technology investments on productivity and Bernstein (1998) determined the impact of the quality of workers, R&D, and firm size on productivity.

In companies, money flows from cash to inventory and long term assets, then returns to cash through the amortisation of long term assets and the sale of inventory. Inventory turnover ratio analyzes how many times the company's inventories have been sold in a year. A high value of this ratio indicates the profitability of the company. Inventories are low liquidity entries in assets, therefore high inventory turnover ratio is positive. Low inventory turnover ratio

causes the cash flow to slow down, increasing the need of net working capital. Because an increase in inventory turnover ratio decreases inventory costs, it increases cash flows, profitabilities, and productivities. Hitt, et. al., (2002) determine the positive effects of technology investments on inventory turnover. In our study, while inventory turnover had a correlation with productivity in 1997 at a 5 % level of significance, it had no significant loading to overall business performance.

Market value/book value is the proportion of the price of a share to the shareholders' equity per share. The ratio is a good explanatory variable to measure share performance (Gagne, Reddy, 1999). It is possible to see high MV/BV depending on a feeling of confidence for a company, but a ratio over the average shows that the price of share is expensive, while a ratio under the average shows that the share is cheap. Sector (Ray, Tsay, 2000) interest rates and expectations are effective factors in determining the market value of a company (Stock, 1981). Chan et. al., (1992), Fama and French (1992) stated that MV/BV is effective in expressing expected income. A firm's owning a high value of MV/BV indicates the expected income of shares. Fama, French (1992) Morck, et. al., (1998) and McConnell and Servaes (1990) determined that this ratio is affected by income. In this study a high correlation was found between MV/BV and cash flow in stable times and MV/BV and leverage in unstable times. There was no significant correlation between MV/BV and firm size in this study as cited by Loughran (Trecartin, 2000). Because smaller firms are riskier than larger firms and because of the relation between risk and revenue, smaller firms may be more profitable than larger firms. The amount of dividents paid to shareholders from net profit may be more in smaller firms. This could be the reason for the lack of a relation between share performance and firm size.

No significant relation was found between value added growth rate and any predictor variable. Of the firms, 46 had negative growth and 57 of the firms had positive growth rates in the sample from 1997. When this sample was divided into two groups, firms with positive growth rates and firms with negative growth rates, it was seen that high-growth firms have higher profitability, productivity, MV/BV, cash flow, mac&eqp, and current ratio than the rest of the firms. However, such firms have higher leverage than low-growth firms. This result does not appear in the sample of 2002, an economically unstable period. Barney (1991) and Wernefelt (1984) determined that qualitative manpower,

experience, competition, instutional substructure, and management are the factors of growth. Griliches (1994) ascertained that the basic factors of growth are technology and R&D investments, which provide improvement in productivity, and the development of new products and new processes. Long term value added growth rate's continuity depends on the improvement of new technologies. Since R&D investments are poor or non-existent in the Turkish manufacturing industry, the effects of R&D on growth could not be perceived by the analysis.

# 6. Conclusion

Performance measurement is crucial for companies. Companies must measure their performance multidimentionally. Profitability, productivity, stock returns and growth are the common targets of companies. These indicators can be used to measure business performance. Our study shows that, among these criteria, the most important ones are profitability and productivity for both economicallly stable and unstable times. There are many factors that can affect the performance of organizations, such as cash flow, debts, firm size, quality, innovation, R&D, corporate culture, etc. Among the factors, the most effective ones investigated in this study were cash flow, leverage, current ratio, firm size and machinery and equipment. However, productivity is important as well when the economy is stable, and profitability almost determines business performance. But when the economy is unstable, productivity is as important a criterion as profitability. Similarly, cash flow, leverage, current ratio, size and machinary and equipment are critical factors in improving business performance. While cash flow is highly important when the economy is stable, leverage is as important as cash flow when the economy is unstable. Even though the effect of firm size and current ratio increased in unstable times, the effect of machinery and equipment decreased. The results of the study indicate that business performance has a positive correlation with cash flow ratio, current ratio, firm size and machinery and equipment, and has a negative correlation with leverage. Although it was not in the results of the study, business literature emphasizes that R&D investments are urgent for long term success.

**Limitations of the research:**

More non-financial indicators should be employed in the analysis.

More predictor indicators should be be included in the analysis. For instance, sales returns or average defective ratio, which measure production quality; absenteeisim, number of employee-employer disagreements or number of accidents, which measure quality of work conditions; experience of top mangers, maturity, qualified workers for growth, salaries of employees or contributions to social associations, which measure the social aims of firms.

In this study, data were collected from Turkey's top 1000 major industrial enterprises, to the exclusion of relatively small enterprises.

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# Are Imports and Exports Cointegrated: the Case of Bulgaria between 1967 and 2004

Yannick Bineau

## Abstract

This note tests current account sustainability in Bulgaria from 1967 to 2004. Empirical analysis adopts various unit root and cointegration tests with structural breaks. Evidence of a long run relation between exports and imports in Bulgaria is shown, despite the financial crisis of 1996/8. Intertemporal current account constraint is not violated in Bulgaria.

Key words: Current account sustainability, Cointegration, Bulgaria.

JEL : C1, F14, F30.

## 1. Introduction

This study investigates the current account sustainability of Bulgaria, which remains important information for policy-makers. Bulgaria has experienced persistent current account deficits, except between 1981-1984 under the Communist regime and during the 1996-1998 financial crisis. In 1997, Bulgaria adopted an exchange rate policy wherein the exchange rate is fixed against an external anchor regardless of the current account situation. In the short term, effects induced by current account deficits are not significant and unable to affect exchange rate parity. If Bulgaria is found not to be on a long-term, stable path, some policy variables may be changed, but exchange rate cannot. If Bulgaria is facing lasting current account imbalances, it could induce a forced adjustment process between sectors and might affect current account sustainability, and raise concern about exchange rate policy and nominal parity.

One way to evaluate current account sustainability is to analyse the long run relation between exports and imports with cointegration techniques. Using long run equilibrium relationships between imports and exports to test current account sustainability has been a technique that has received some attention in the past few years. Already, different forms of cointegration techniques have been implemented (Husted 1992; Wu, Fountas and Chen, 1996;

Arize 2002; Narayan and Narayan, 2005). To the best of our knowledge, there have been no empirical studies on the sustainability of the current account applied to Bulgaria.

The rest of the paper is organized as follows. Section 2 briefly provides a theoretical background and describes the econometric issues. Section 3 provides data description and empirical results. Section 4 offers conclusions.

## 2. Theoretical Background

The theoretical basis is an intertemporal balance model. This framework is taken from Husted (1992). He models the behaviour of the stock of external debt to determine whether a country's intertemporal budget constraint is verified. The representative consumer's current-period budget constraint at period $t$ is given by:

$$C_t = Y_t + B_t - I_t - (1 + r_t)B_{t-1} \qquad (1)$$

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Where $C_t$, $Y_t$ and $I_t$ are consumption, output and investment respectively; $r_t$ is a one-period world interest rate; $B_t$ describes international borrowing available to the consumer, which could be positive or negative. Initial debt size is $(1+r_t)B_{t-1}$. From the relation (1), the following expression for analysing the current account sustainability is derived:

$$B_t - B_{t-1} = r_t B_{t-1} - NX_t \qquad (2)$$

Where $NX_t$ describes trade balance. In order to get a testable relation for the hypothesis of current account sustainability, Husted (1992) makes several assumptions. Equation 2 is transformed into the following expression:

$$EX_t = \alpha_0 + \alpha_1 IM_t + \varepsilon_t \qquad (3)$$

Here $EX_t$, $IM_t$ are exports of goods and services, and imports of goods and services plus net transfer payments plus net interest payments, respectively. The letter $\varepsilon_t$ describes an error term.

Cointegration analysis is the methodology that is used if imports and exports are taken as a test of a country's intertemporal current account constraint. The procedure involves checking for integration order for each series. If a series has a unit root, cointegration regression stated by equation (3) is conducted. If the null of no-cointegration, the hypothesis that the two I(1) variables are not co-integrated, is rejected, this implies that one should accept the alternative hypothesis of co-integration between $EXt$ and $IMt$. The series $\varepsilon_t$ is a stationary process and should not display a unit root. Then, three conclusions concerning the cointegrating vector $(1,-\alpha_1) = (1,-1)$ and current account constraint may be established.

First, if co-integration cannot be proven, the current account deficits are unsustainable. There is no reason to conclude that $\alpha_1 = 1$. Second, when there is proof of co-

integration and if there a proof that $\alpha_1 = 1$, then the current account deficit is sustainable. Third, if there is a cointegration relation between $EX_t$ and $IM_t$ and if $0 < \alpha_1 < 1$, intertemporal current account constraint might fail to be respected, because imports grow faster than exports and the hypothesis of sustainability of current accounts is violated. From previous studies that implemented this approach in the context of public finance (Hakkio and Rush 1991; Liu and Tanner 1995), it is possible to prove that if exports and imports are expressed as a percentage of GDP, it is necessary to have $\alpha_1 = 1$ in order for the trajectory of the external debt to GDP not to diverge in an infinite horizon.

# 3. Data and Estimation Results

## Data

Data was obtained from national accounts from the Bulgarian National Statistical Institute, from IMF's International Financial Statistics and from CEPII's data base. We used annual imports and exports from 1967 to 2004. This was the longest span available. All exports and imports data are divided by Bulgarian GDP and transformed into natural logarithms prior to econometric analysis.

## Unit Root Tests

Table 1 shows the unit root results for imports and exports series. Bulgarian exports and imports followed random trajectories. The results show that both series are I(1), since the unit root null is rejected for level data, but not rejected for differenced data according to Augmented-Dickey-Fuller (ADF) and Phillips-Perron (PP) tests.

Such unit root tests assume that there are no structural

| | ADF | | | | | | PP | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.3025 | 0.0145 | 0.7545 | 74.16 | 0.5250 | 0.5250 | 0.3025 | 0.0145 | 0.7545 | 74.16 | 0.5250 | 0.5250 |
| *IM* | -2.578 | 0.291 | -1.344 | 0.598 | -1.434 | 0.138 | -2.518 | 0.318 | -1.072 | 0.716 | -1.844 | 0.062 |
| *EX* | -2.672 | 0.253 | -1.631 | 0.456 | -1.466 | 0.131 | -2.561 | 0.298 | -1.439 | 0.552 | -2.210 | 0.027 |
| *IM-EX* | -3.879 | 0.023 | -3.817 | 0.006 | -3.057 | 0.003 | -3.885 | 0.022 | -3.854 | 0.005 | -3.110 | 0.002 |
| *ΔIM* | -5.487 | 0.000 | -5.562 | 0.000 | -5.513 | 0.000 | -8.387 | 0.000 | -8.076 | 0.000 | -5.567 | 0.000 |
| *ΔEX* | -5.198 | 0.000 | -5.279 | 0.000 | -5.239 | 0.000 | -8.691 | 0.000 | -8.991 | 0.000 | -5.478 | 0.000 |
| *Δ(EX/IM)* | -6.587 | 0.000 | -6.636 | 0.000 | -6.731 | 0.000 | -7.611 | 0.000 | -7.630 | 0.000 | -7.742 | 0.000 |

**Table 1.**
Unit Root Tests on Exports and Imports (percent of GDP)
$T\zeta, T\mu$ and $T$ are the Dickey-Fuller and Phillips-Perron statistics with drift and trend, with drift, and without drift and trend, respectively.
The order of augmentation of the ADF tests (given in brackets) is selected by the Schwarz Bayesian criterion (SBC) using the maximum order of 4. Critical values are taken from MacKinnon (1991).

|  | Break date $T_B$ | ADF test | Lags |
|---|---|---|---|
| *IM* | 1979 | -4.154[a] | 1 |
| *EX* | 1993 | -3.944[a] | 1 |
| *IM-EX* | 1992 | -4.533[a] | 0 |
| *ΔIM* | 1989 | -6.536[a] | 2 |
| *ΔEX* | 1989 | -6.925[a] | 2 |
| *Δ(EX/IM)* | 1992 | -6.961[a] | 1 |

**Table 2.**
Zivot and Andrews Test for Structural Change in
Exports and Imports (percent of GDP)
[a], [b] and [c] denote statistical significance at the 1%, 5% and 10%, level.
respectively. Critical values from Zivot and Andrews (1992, table 4).

breaks in the series. Standard tests such as ADF or PP tests are ineffective. They are biased toward the non-rejection of the unit roots if a structural change in the trade function exists. This might be the case for Bulgaria. Following Zivot and Andrews' (1992) recursive approach, the null hypothesis that the series have unit root against the alternative of stationarity with endogoneous structural change was tested. An unknown break date was the value that minimised the -statistic. The break date was chosen endogeneously as a value over all possible break points. Table 2 provides the results of ADF test statistics proposed by Zivot and Andrews (1992) for the estimated break dates, the best-fitted regression of minimum -statistic and the minimum lag. The results show conclusive evidence in favor of unit roots for exports and imports series, and conclusive evidence of stationarity for current account deficits. The breaking date was unstable.

## Cointegration Tests

The system-based method of Johansen and Julesius (1990) was used to test for the existence of cointegration relation between exports and imports. The results are shown in Table 3. Cointegration tests recommend the presence of one cointegrating vector between exports and imports. Unit root tests for the difference between exports to imports, which is the proxy for current account deficit, are also reported in Table 1. Following Gunlach and Sinn 1992, it was a direct cointegration test, where the cointegrating parameters were restricted to the values of zero (intercept) and one (slope). This empirical test showed that the current account deficit is sustainable for Bulgaria because the null hypothesis was rejected in favor of the alternative of stationarity.

## Long Run Relation Analysis

Table 4 provides evidence for the long run relationship between series. The implementation of the dynamic ordinary least squares method (DOLS) suggested by Stock and Watson (1993) was performed. The DOLS procedure increases the cointegrating relationship with leads and lags in the first differences of the exogeneous regressors of equation observed to control feedback effects. Thus, it accounts for the endogeneity of the regressors and for serial correlation in the residuals. A simple OLS regression provides supercon-sistent estimates of the long run parameters. The t-statistic is based on the long run variance of the residuals instead of the contemporaneous variance, which is commonly used in OLS. The auto-regressive distributed lag approach

| Cointegration LR test based on maximal eigenvalue of the stochastic matrix | | | |
|---|---|---|---|
| *Null* | *Alternative* | *Statistics* | *95% Crit. Value* |
| r=0 | r=1 | 17.998 | 14.07 |
| r<=1 | r=2 | 1.955 | 3.76 |
| Cointegration LR test based on trace of the stochastic matrix | | | |
| *Null* | *Alternative* | *Statistics* | *95% Crit. Value* |
| r=0 | r=1 | 19.954 | 15.41 |
| r<=1 | r=2 | 1.955 | 3.76 |

**Table 3.**
Cointegration Tests
List of variables included in the cointegrated vector: EX, IM, intercept,
and 37 observations for 1967 -2004, Maximum lag in VAR = 1.

|  | DOLS (1993) | DOLS (1993) | ARDL(2001) | ARDL(2001) |
|---|---|---|---|---|
| *Lags (-) leads (+) structure* | (-3,+1) | (-3,+1) | (-2,+1) | (-2,+2) |
| **ECT** |  |  | -0.575 (0.223) | -0.560 (0.236) |
| $\alpha_0$ | -0.054 (0.052) | -0.091 (0.092) | -0.049 (0.051) | -0.005 (0.105) |
| $\alpha_1$ | 0.975 (0.048) | 0.944 (0.079) | 0.955 (0.074) | 1.017(0.154) |
| $\alpha_2 D_t$ |  | 0.021 (0.062) |  | -0.025 (0.060) |
| $R^2$ | 0.962 | 0.962 | 0.862 | 0.820 |
| **Logl** | 44.965 | 45.036 | 45.652 | 45.756 |
| **ADF[ae] on residuals** | -3.678 (0) | -3.721 (0) | -5.750 (0) | -5.798 (0) |
| **Cointegration F** |  |  | 20.311 | 17.469 |
| **Wald Test $\alpha_1$=1 (p-value)** | 0.248 (0.617) | 0.480 (0.488) | 0.360 (0.540) | 0.013 (0.908) |

**Table 4.**
Long Run Relations between Exports and Imports
(percent of GDP) [b]
Dt = 0 up to 1992 and 1 between 1993 and 2004.
[a] The critical value for the ADF statistics are -3.626 (1%), -2.945 (5%)
  and -2.611 (10%). Critical values are taken from  MacKinnon (1991).
[b] White heteroskedasticity-consistent standard errors are in (brackets).
[c] The order of augmentation of the ADF tests on residuals
  [given in brackets] is selected by SBC using the maximum order of 4.

(ARDL) suggested by Pesaran, Smith and Shin (2001) was also adopted. The dependant variable in the first difference is regressed on the lagged values of the dependant and independant variables in levels and first differences.

In each case, optimal leads and lags were chosen from the Schwarz Bayesian criterion (SBC). Also, time break was taken into account as can be deduced from unit root tests. From Table 4, both methods confirm the existence of cointegration relation between exports and imports. Standard ADF tests applied to the residuals of each relation show that residuals are stationary. The inclusion of a dummy for trend break in 1992 did not induce significant change in the results. Estimates of range from -1.017 to -0.936. Tests on the restriction of the null hypothesis that the coefficient = 1 were very conclusive. In all cases, Wald statistics were able to reject the alternative hypothesis that is different from unity. One can then conclude that the Bulgarian current account deficit was sustainable between 1967 and 2004.

## 4. Conclusion

This paper examined the Bulgaria's intertemporal budget constraint through the import-export correlation using annual data from 1967 to 2004. The latest cointegration techniques that consider the presence of possible regime changes on trade series showed that there was a long run relation between imports and exports over the period. From empirical findings, one can conclude that the Bulgarian current account deficit experienced over the past 30 years was sustainable.

Under these conditions, one can also conclude that the Bulgarian Currency Board Arrangement which implies the fixity, by the law, of the Bulgarian currency against the euro could last. Adoption of the euro could be eased. However, recent evolutions of the Bulgarian current accounts are likely to modify these results. The rise in domestic demand, induced by the strong growth of domestic credit strongly unbalanced the external current accounts through an increase in imports. The financing of these external imbalances via foreign direct investment inflows is likely to become exhausted in the longer term, because state owned companies are less numerous. International reserves might decrease and external debt might increase. Lastly, the trend of the European currency weakens the export sectors and increases the risks of imported inflation of this small economy. One way to respect long-term current account sustainability and to restore competitiveness would be to modify exchange rate parity.

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# Should Italians, Croats and Slovenes Work Together in Developing a Northern Adriatic Tourist Destination?

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## Abstract

*The article assesses opportunities for creating a macro-tourist destination in the region of the Northern Adriatic. Research was based on a survey of more than 1700 summer tourists in three different sea towns, namely Grado in Italy, Opatija in Croatia and Portorož in Slovenia in 2004. The three countries share a common past under the Austro-Hungarian monarchy and are headed for a common future within the European Union. Survey results of tourists' motivations and destination quality perceptions support the notion that the Northern Adriatic is considered by many central Europeans as the "sea closest to home". Thus, EU efforts under the framework of the Cohesion Policy of EU regions could also be adopted in the area of joint destination management of the Northern Adriatic. A Destination Management Organization for the three regions should be established as the main agent of change in the destination management of the region.*

Key words: Macro Tourist Destination, Cross-Border Cooperation, Tourist Behavior, Destination Management Organization.

## 1.Introduction

What is the influence of the last wave of EU enlargement on the European economy? Does it bring benefits to both the old members and the new? Can a continuation of this process be expected? These questions stand in the focus of current political and academic discussions; nevertheless, the answer is not entirely straightforward. Several studies confirm the positive effect of the enlargement on the economic growth of both the old and new member countries, whereas some studies appear more skeptical.[1] There is an even greater difference between political standpoints and public support, which only contributes to the uncertainty regarding its future.[2]

of a numerical simulation model for Germany, found a positive overall welfare benefit from enlargement for E15 countries. Finally, Kutan & Yigit (2007) extended the trade argument with a "knowledge" spread effect. According to them, the European integration process allows access to a wider body of knowledge and hence leads to higher productivity by enhancing the effectiveness of labor.

[2.] Since French and Dutch voters rejected referenda on the EU constitution two years ago, the Union is stuck with cumbersome decision-making rules designed for a bloc half its size. New enlargements will probably not be possible before the EU reaches a new consensus on the EU constitution.

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[1]    Earlier studies of the effect of regional integration that relied on foreign trade variables to capture the effects of EU integration found support for the influence of the integration on economic growth (Baldwin et al. 1997, Henrekson et al., 1997). Neueder (2003) claims that, on the whole, enlargement will be of greater benefit to the acceding states than to the initial E15 countries, and that the costs of the enlargement will be high, especially for the biggest contributor, Germany.  Kohler (2004), on the basis

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In this paper we present the results of a study dealing with travel motivations and destination quality perceptions in the three tourist destinations of the three neighboring countries, each characterized by a similar tourist product. Our study is of interest for four principal reasons. First, it includes Italy, a founding EU member, Slovenia, a recent addition to the EU in 2004, and Croatia, currently a candidate country. The focal point is to analyze the possibilities for enhanced cooperation between the economic subjects that arose with these countries becoming a part of the broader economic area of the EU. Second, our study is among the first to cover the possible collaboration between "old" and "new" European countries in the tourism industry. Summer tourism is of the greatest importance for all three locations, and has many common characteristics from the viewpoint of potential visitors (also referred to as the 3S, »sea«, »sun«, »sand« tourist product). On the other hand, the destinations offer other specific elements to the tourist that can complement each other and maximize customer benefit.[3] That is why joint resource management could positively contribute toward coordination and market recognition. Third, the notion of tourist destination is still not very well defined in the literature and praxis. In the present study we confronted two concepts of a tourist destination. The first refers to the tourist destination as the management of multiple products according to an administrative – geographical principle. The second concept defines tourist destination as the management of related products in an area that the tourist perceives to be superior to satisfying one's needs. That is why a tourist is willing to pay a price premium for additional benefits.[4] Finally, we were able to assess the role of the Destination Management Organization (DMO), which holds a key role in connecting different products in the tourist destination. We demonstrated how to collect information on travel motivations and tourists' destination quality perceptions, how to set guidelines for future development of tourist offers and the role of the organization as the agent of change in destination management.

Our results show that summer tourists in the three regions of the northern Adriatic are more laidback, regard the natural resources of the northern Adriatic as a given, and are seeking rest, relaxation and personal safety. In this respect they are different from tourists visiting Venetian cultural attractions, summer tourists on Dalmatians islands, or hiking tourists in the Slovenian mountains. However, these tourists are not a homogenous group and can be segmented according to their motivations into five groups: fun lovers, traditional summer tourists, demanding tourists, tourists

"without distinctive interests" and tourists with interests in nature, culture and gastronomy. With regard to determinants of quality perceptions for the tourist segment, we show the importance of pull motivations (cultural and historic sites, quality beaches, hospitality, lively atmosphere and local cuisine offerings) and push motivation (peacefulness) for all five segments. That brings us to the conclusion that although three separate seaside destinations belong to different countries, different national languages and distinct cultures, the whole region could also be regarded as one macro destination.

The paper is organized as follows. In second section we present the relationships between travel motivations and destination quality perceptions, which are a base for our empirical testing and our discussion. We start the third section with a brief overview of the three destinations under investigation and further describe the data and variables that we use. In the fourth section we present the results and in the fifth section we draw conclusions.

## 2. Conceptual Framework

Demand for travel to a particular tourist destination depends on two factors: (1) propensity, a person's predisposition to travel (how willing the person is to travel, what types of travel experiences and tourist destinations are preferred), and (2) resistance that relates to relative attractiveness of various destinations. Resistance is a function of economic distance, cultural distance, the cost of tourist services at a destination, the quality of service at a destination, the effectiveness of advertising and promotion, and seasonality. Economic distance stands for the time and cost involved in traveling to and from the chosen tourist destination. Higher economic distance implies higher resistance and thus lower demand (Crouch, 1994; Goeldner & Brent, 2003; Witt & Witt, 1992).

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[1]    Here we present the economies of scope argument in tourism – a case of bounded products, where all products are based on some common characteristics such as climate, sea and a peaceful and safe environment. A multiple tourist product is therefore composed of partial tourist products, that is various finished products and services and experiences that are available to a tourist at a specific time and place and satisfy customers' different needs (product differentiation) (Teece, 1982).

[2.]    For the first definition see Hall (2000) and Davidson & Maitland (1997). An example of the second definition can be found in Buhalis (2000) and (Konečnik, 2005).

In the decision-making process of choosing a tourist destination, a moderating role is attributed to motivations (Nicolau & Mas, 2005). Motivation encompasses psychological as well as biological needs and wants, together with integral forces that arouse, direct and integrate individuals' behavior and activity (D'Andrade, 1992; Mullen & Johnson, 1990; Uysal & Hagan, 1993). From a tourism perspective, behavior and activity refer to demand for tourist products. Most tourist motivation studies have made a distinction between push and pull motivations (Crompton, 1979; Gnoth, 1997; Pyo et al., 1989; Yoon & Uysal, 2005; Yuan & McDonald 1990). Push motivations are more related to internal or emotional aspects; that is, individuals' desires and feelings—for example, the desire to escape, rest and relaxation, prestige, health and fitness, adventure and social interaction, family togetherness and excitement. On the contrary, pull motivations have to do with the external, situational, or cognitive aspects; that is, a destination's attractiveness reflected among others through cultural and natural attractions, entertainment, beaches, shopping and recreation facilities. Eymann & Ronning (1997) studied the macro-destination choice with explicative dimensions, including motivations and other personal characteristics of tourists. A specific destination may be visited by tourists with different socioeconomic, demographic or geographic characteristics. However, tourist segments in destination management should be defined according to the tourist's travel motivations, e.g. their desires and cognitive aspects related to travel, and not simply according to their socioeconomic, demographic or geographic characteristics (Baloglu & McCleary, 1999; Leisen, 2001).

Perceived quality can be defined as the subject's judgment about the overall excellence or superiority of a product: the judgment is usually made within an evoked set of products; it is a global assessment with higher level abstraction than a specific attribute of a product and differs from objective quality (Zeithaml, 1988). Service quality refers to the customer's impression of the relative superiority/inferiority of the specific service offer (Bittner & Hubbert, 1994; Johnston, 1995). Quality judgments are primarily of a cognitive nature and individuals can shape their perceptions of quality without having first-hand experience.

According to differences in travel motivations, we can expect several distinct tourist segments at all destinations. Namely, different segments are looking for different attributes in a tourist destination to satisfy expectations they have for summer holidays by the sea. Further, this means

their quality assessments of the destination will also differ.

A key aspect of this study is to test relationships between tourist motivations and destination-specific perceived quality assessments for separate tourist segments according to their destination choice. The study aims to provide answers for policy-making in the destination management area on the common grounds of travel motivations and tourists' quality perceptions.

## 3. Research

### Brief Overview of Three Destinations under Investigation

The basic attractions of the northern Adriatic region are the Adriatic Sea and its central European position. The three summer tourist destinations in the region of the northern Adriatic included in this study are Grado in Italy, Opatija in Croatia and Portoroz in Slovenia. All three destinations have long traditions of tourism. Their beginning can be traced back to the period when all three geographical locations were a part of the Austro-Hungarian monarchy.

The first mention of tourism in Opatija dates back to the year 1844, when the first summerhouse called Villa "Angiolina" was built. It was surrounded by an exotic park and in a little while, this villa had become the center of social life in the area. At that time, visits from many famous people (Francis Joseph, Josip Jelacic, Empress Maria, Ferdinand I) contributed to Opatija's growing fame. In 1891 the first hotel and baths were built in Portoroz. The therapeutical effects of the saltpan mud and brine, both being byproducts of traditional salt production, drew an increasing number of tourists to Portoroz. Once mainly a fishing center, Grado became a popular tourist destination, known commonly as l'Isola del Sole, also famous as a spa town. Together with Marano Lagunaire, it is the center of a lagoon recognized for its uncontaminated nature. Grado, a historic town from the Roman era, has, like Opatija and Portoroz, a tradition of more than a hundred years of tourism.

In the 1920's all three towns belonged to Italy, while after the Second World War Opatija and Portoroz became parts of Yugoslavia.

With the reputation of being the "Queen of Croatia's tourism," after the Second World War, Opatija improved its tourist offerings with the construction of luxurious hotels and

the renovation of old ones. However, during the Homeland War (1991-1995), it opened its doors to refugees, lowering its capacity available for the tourist season. War also had an impact on the declining arrivals of tourists each year. In Portorož, "port of roses" in Italian, new hotels, a casino, airport, congress center and numerous recreational sites were built between 1965 and 1976. At that time, Portoroz was a mundane destination with more and more tourists arriving every year. The disintegration of Yugoslavia in 1991 was also the reason for a strong decrease in tourism in Portoroz. The circumstances dictated the development of new tourist offerings and the repositioning of Portoroz within the tourism market. Swimming pool sites were renovated and expanded and complemented with wellness programs. At the same time, investments were made in the development of congress tourism.

Table 1 presents the basic tourist products that constitute the tourist offering at the three destinations.

| Measurement scales | Grado | Opatija | Portorož |
|---|:---:|:---:|:---:|
| "Sea, sun, sand" | ✓ | ✓ | ✓ |
| Thermal spas | ✓ | ✓ | ✓ |
| Wellness | ✓ | ✓ | ✓ |
| Congress tourism | | ✓ | ✓ |
| Cultural events | ✓ | ✓ | ✓ |
| Historical sites | ✓ | ✓ | |
| Culinary offerings | ✓ | ✓ | ✓ |
| Recreation | ✓ | ✓ | ✓ |
| Gambling (casinos) | | ✓ | ✓ |
| Marina | ✓ | ✓ | ✓ |

**Table 1.**
Tourist Offerings at the Three Locations

Summer bathing tourism, or the three S tourist offerings ("sea", "sun" and "sand"), holds its position as the prevailing tourist offering at all three destinations. Nevertheless, each destination is distinctive in some characteristics. A distinctive feature of Grado is that its beaches are suitable for families. Opatija is well known for its rich cultural and historic heritage, while Portorož offers well developed thermal and wellness capacities and modern, high capacity convention centers.

## Description of Data and Empirical Methods

The study is based on data about motivations and quality perceptions that have been obtained from adult tourists that visited the tourist destinations of Grado, Opatija and Portoroz during the summer months of July and August 2004. The study thus focuses on summer tourism in these primarily summer oriented destinations.

In each of the three destinations, a probability sample of tourists was obtained. Any transit tourists that were visiting any of the three destinations (as a stopover or secondary destination) on their way to a destination of their primary choice were excluded from the survey. The reason behind this is that transit tourists tend to give less attention to secondary destinations (they visit only major attractions), their stay is of shorter duration and they have unclear expectations (Lue et al., 1993; McKercher & Wong, 2004). The final sample included 1,722 observed units; 338 from Grado, 678 from Opatija and 706 from Portoroz. The static character of this study limits the results to the main tourist season of the three analyzed destinations and thus offers a partial picture of the tourist offerings throughout the year.

A structured questionnaire provided the basis for personal interviews with tourists. Respondents were asked to evaluate the importance of twenty-one motivations when choosing a tourist destination (Table 2). Destination attributes were defined based on an inventory analysis of the tourist offer being used by the International Tourist Institute at the Slovene National Tourist Association (International Tourist Institute, 2003). A matching set of criteria was used for assessing expectations and performance scores regarding tourist offering dimensions, with the accessibility of tourist information as an added dimension. Overall expectations and overall quality perception of the tourist offerings were also collected. Further questions covered quality-price ratio of tourist offerings, probability of recommendation (positive word of mouth) and repeat visit probability. Geographic and demographic tourist characteristics were obtained as well as data about the general characteristics of the tourist's visit (accommodation, duration of stay, etc.).

Multivariate cluster and factor analysis were used to determine clusters of visitors at different destinations according to their travel motivations. Twenty-one motivations were used as a segmentation base in cluster analysis for tourists of all three destinations combined. The number of clusters was defined using the hierarchical method. Clusters were then defined by the K-means clustering method. With fac-

tor analysis, the selection of twenty-one motivations was systematically reduced to six motivational factors that were later employed in a comparison analysis of segments.

For the analysis of quality perceptions we applied the estimation of ordinal regression models. Ordinal regression was used due to the ordinal nature of the dependant variable.[5] The overall quality score for the tourist offer was included as the dependant variable and motivations as independent variables with explanatory power. This is in line with the perceived performance model that measures quality judgments regardless of expectations.

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[5] Owing to the asymmetrical distribution of the dependant variable (higher probability of higher values, (McCullagh, 1980), the applied link function is complementary log-log(log(-log(1-γ)) , where γ gamma) denotes cumulative probability).

| | Motivations | Whole Sample average | Standard Deviation | Grado | Opatija | Portorož |
|---|---|---|---|---|---|---|
| 1. | Tidiness and cleanliness | 4,45 | 0,75 | 4,44 (+) | 4,43 (+) | 4,47 (+) |
| 2. | Personal safety | 4,40 | 0,88 | 4,48 (++) | 4,33 (+) | 4,43 (+/++) |
| 3. | Natural beauty | 4,30 | 0,85 | 3,81 (+) | 4,55 (+++) | 4,29 (++) |
| 4. | Hospitality | 4,28 | 0,83 | 3,87 (+) | 4,33 (++) | 4,42 (++) |
| 5. | Quality beaches | 4,23 | 0,90 | 4,33 (++) | 4,14 (+) | 4,27 (++) |
| 6. | Quality accommodation | 4,18 | 0,89 | 4,30 (++) | 3,98 (+) | 4,33 (++) |
| 7. | Peacefulness | 4,12 | 1,01 | 4,16 (+) | 4,11 (+) | 4,10 (+) |
| 8. | Lively atmosphere | 4,03 | 0,94 | 4,05 (+/++) | 4,09 (++) | 3,96 (+) |
| 9. | Restaurant offerings | 3,96 | 1,00 | 3,91 (+) | 3,91 (+) | 4,03 (+) |
| 10. | Prices | 3,91 | 0,95 | 3,63 (+) | 4,06 (+++) | 3,91 (++) |
| 11. | Local cuisine offerings | 3,87 | 1,10 | 3,91 (+) | 3,93 (+) | 3,79 (+) |
| 12. | Public transport | 3,62 | 1,38 | 2,86 (++) | 2,56 (+) | 2,55 (+) |
| 13. | Cultural and historic sites | 3,49 | 1,14 | 3,45 (+) | 3,65 (++) | 3,34 (+) |
| 14. | Nightlife and entertainment | 3,27 | 1,37 | 3,25 (+) | 3,32 (+) | 3,24 (+) |
| 15. | Cultural events | 3,27 | 1,25 | 3,53 (++) | 3,20 (+) | 3,21 (+) |
| 16. | Family friendliness | 3,03 | 1,61 | 3,08 (++) | 2,83 (+) | 3,21 (++) |
| 17. | Recreation facilities | 3,00 | 1,27 | 3,03 (+) | 2,92 (+) | 3,05 (+) |
| 18. | Wellness | 2,42 | 1,43 | 1,97 (+) | 2,21 (++) | 2,84 (+++) |
| 19. | Shopping for established brands | 2,36 | 1,32 | 2,67 (+++) | 2,15 (+) | 2,42 (++) |
| 20. | Spa facilities | 2,35 | 1,42 | 2,15 (+) | 2,03 (+) | 2,72 (++) |
| 21. | Gambling | 1,72 | 1,21 | 1,24 (+) | 1,75 (++) | 1,91 (+++) |

**Table 2.**
Importance of Basic Motivations According to Destination
Scale: 1 – not at all important, 2 – slightly important, 3 – fairly important, 4 – quite important, 5 – very important.
Note: Post-hoc Duncan test of variance was used to determine groups with statistically significant differences (significance level 0.05) for every motivation. Pluses and minuses as well as their numbers denote which of the identified groups belongs to a specific tourist destination and its rank relatively to other groups. A tourist destination that does not fall specifically into one of the distinctive groups has double denotation. Minuses depict negative values and pluses positive values, respectively.

| Factors and corresponding motivations | Fun lovers | Traditional summer tourists | Demanding tourists | Tourists without distinctive interests | Tourists with interests in nature, culture and gastronomy |
|---|---|---|---|---|---|
| **Basic tourist offerings** | + | + / ++ | ++ | -- | - |
| Tidiness and cleanliness | ++ | +++ | +++ | + | +++ |
| Quality beaches | +++ | ++++ | ++++ | + | ++ |
| Hospitality | ++ | +++ | ++++ | + | +++ |
| Prices | +++ | +++ / ++++ | ++++ | + | ++ |
| **Extended tourist offerings** | ++ | + | +++ | -- | - |
| Nightlife and entertainment | +++++ | +++ | ++++ | + | ++ |
| Recreation facilities | +++ | +++ | ++++ | + | ++ |
| Shopping for established brands | +++ | ++++ | +++++ | + | ++ |
| Public transport | +++ | +++ | ++++ | + | ++ |
| Cultural events | ++ / +++ | +++ | ++++ | + | ++ |
| Lively atmosphere | ++++ | +++ | ++++ | + | ++ |
| **Prestige** | - | -- | + | - | + |
| Wellness | +++ | ++ | ++++ | + | ++++ |
| Spa facilities | + | ++ | +++ | + | +++++ |
| Gambling | ++ | + | +++ | + | ++ |
| **Culinary offerings** | + / ++ | + | ++ | -- | ++ |
| Local cuisine offerings | ++ | ++ | +++ | + | ++ |
| Restaurant offerings | ++ | ++ | ++++ | + | +++ |
| **Peacefulness and accommodation** | -- | +++ | ++ | - | + |
| Family friendliness | + | ++++ | +++ | ++ | ++ |
| Quality accommodation | + | ++ | +++ | + | ++ |
| Peacefulness | + | +++ | +++ | ++ | +++ |
| Personal safety | + | +++ | +++ | + | ++ |
| **Cultural and historic attractions** | - | + / ++ | + / ++ | + | ++ |
| Cultural and historic sites | + | +++ / ++++ | ++++ | ++ | ++ / +++ |
| Natural beauty | + | ++ | +++ | + | ++ |
| Share of segment within destination | | | | | |
| Grado | 26,3 % | 34,3 % | 10,4 % | 16,0 % | 13,0 % |
| Opatija | 24,0 % | 21,5 % | 18,7 % | 26,4 % | 9,4 % |
| Portorož | 14,3 % | 26,2 % | 23,8 % | 14,2 % | 21,5 % |
| Share of segment within whole sample | 20,5 % | 25,9 % | 19,2 % | 19,3 % | 15,1 % |

**Table 3.**
Tourist Segments According to Motivations
Note: Post-hoc Duncan test of variance was used to determine groups with statistically significant differences (significance level 0.05) for every factor and motivation. Pluses and minuses as well as their number denote which of the identified groups belong to specific tourist segments and their rank relatively to other groups. Those segments that do not fall specifically into one of the distinctive groups have double denotation. Minuses depict negative values and pluses positive values, respectively.

# 4. Results

According to respondents from all three destinations, tidiness and cleanliness of destination, personal safety and natural beauty followed by hospitality, quality beaches, quality accommodation, peacefulness, and lively atmosphere are among the most important basic tourist motivations related to summer destinations in the northern Adriatic (Table 2). Of special interest are personal safety (ranked second), quality beaches (ranked fifth) and lively atmosphere (ranked eighth). It appears that the ranking of motivations does not perfectly fit the profile of a summer tourist that is seeking fun in beach activities elsewhere. We observe a more laidback tourist that regards the natural resources of the northern Adriatic as a given and is led by the desire for rest and relaxation and personal safety. Grado tourists ascribe importance to public transport, cultural events and shopping for established brands. Opatija tourists primarily consider natural beauty, prices and cultural and historic sites. What separates tourists of Portoroz from tourists of the other two destinations is the importance of wellness, spa facilities and gambling—these were, on average, fairly important motivations for this destination.

Although all tourists in the sample do not share the same motivations, they can be classified into similar segments for all three destinations according to the affinity of distinctive motivations. Five segments were identified: fun lovers, traditional summer tourists, demanding tourists, tourists without distinctive interests, and tourists with interests in nature, culture and gastronomy. Comparisons between segments according to motivations and derived factors are shown in Table 3.

*Fun lovers* are the youngest segment. More than one-half of all tourists in this segment are aged 30 or younger. The basic tourist offerings are highly valued. What differentiates them from other segments is the importance they ascribe to extended tourist and culinary offerings. They are the segment with the lowest average monthly income and the highest share of high school as well as university students. Also substantial is the share of tourists whose main reason for coming to the destination is recreation, fun and excitement (29.2%). No other segment relies as heavily on word of mouth as an information source. Although the highest share of fun lovers travel as couples (43.3%), more than one-third (36.5%) travel with friends, which is the highest percentage among all segments.

*Traditional summer tourist*s are the largest segment in the sample. 66.7% of tourists in the segment are aged between 31 and 40 years. The basic tourist offer holds great importance for these tourists. Compared to other segments, traditional summer tourists ascribe the most importance to peacefulness and accommodation. This segment is least inclined toward products within the prestige offer. The large majority of traditional summer tourists (90.4%) described as their main purpose of travel rest and relaxation, which is the prevailing reason also in other segments. No other segment considers personal experience to be such an important information source. The fact that the chosen tourist destination is the closest proximity to the Adriatic in relation to tourists' homes is, compared to other segments, most important for traditional summer tourists.

*Demanding tourists* ascribe on average the greatest importance to all motivation factors, with the exception of cultural and natural attractions, when compared to other segments. Besides the fifth segment (tourists with interests in nature, culture and gastronomy), this is the only segment that pays attention to prestige offerings when choosing a tourist destination. Of all segments, demanding tourists have the largest share of employees in managerial positions. Another characteristic they have in common with the fifth segment is that they ascribe the greatest importance among segments to an ability to engage in activities they enjoy when making a tourist destination decision. Their average daily consumption per person including accommodation is statistically the highest compared to other segments.

*Tourists "without distinctive interests"* have, compared to other segments, the least explicit preferences regarding motivations. It is interesting that out of all segments, this segment ascribed the smallest importance to prices as a motivation in tourist destination decisions. Tourists "without distinctive interests" have the lowest expectations regarding the tourist offer and the smallest repeat visit probability, which is in line with the highest share of first-time visitors in this segment compared to other segments.

*Tourists with interests in nature, culture and gastronomy* are the smallest segment identified in the sample. It is not the predominant segment in any of the three destinations. Tourists in this segment stand out due to the attention they pay to the following factors: culinary offerings, prestige offerings, peacefulness and accommodation, and cultural and historic attractions. The basic tourist offerings and extended tourist offerings are of lesser importance. Compared to other tourist segments, this segment ascribes the greatest

importance to spa facilities and wellness motivations. It is the oldest segment and with the highest share of tourists in retirement (23.6%) although employed individuals are still the majority (54.3%)

Motivations that positively correlate with overall quality perception scores of fun lovers are natural beauty, hospitality, local cuisine offerings and peacefulness (Table 4). These tourists value personal safety, tidiness and cleanliness and restaurant offerings. For traditional tourists, only motivations with positive correlations were established: personal safety, cultural and historic sites and restaurant offerings. Traditional tourists in Opatija have better perceptions of quality compared to tourists in Grado and Portorož. Demanding tourists will have better perception of quality the more they value cultural and historic sites, nightlife and entertainment and peacefulness. The contrary holds for cultural events. Quality perceptions of tourists in Grado are on average less favorable than those of tourists from the other two destinations. The higher importance tourists without distinctive interests ascribe to natural beauty, a lively atmosphere and peacefulness, the better their overall quality assessments will be. The more importance they place on reasonable prices, the less favorable their quality evaluations will be. Positive correlations between motivations and overall quality perceptions of guests with interests in nature, culture and gastronomy were identified for motivations such as natural beauty, tidiness and cleanliness, quality accommodation and peacefulness. A negative link exists between tourists' motivations regarding the importance of local transport, cultural events and overall quality scores.

Results for the whole sample show the importance of five pull motivations (cultural and historic sites, quality beaches, hospitality, lively atmosphere and local cuisine offerings) and one push motivation (peacefulness). There is a positive relationship between all mentioned independent variables and the dependent variable, except in the case of the pull motivation quality beaches. These results are in line with our previous discussion. Motivation referring to quality beaches did not reach the highest ranks in the average importance scale. However, for those tourists that assign a higher importance to this motivation, there is an increased probability that this will result in a lower overall quality score. We should point out that the average overall quality score in Opatija exceeds that of Portoroz and Grado.

The sample average of overall quality perception of tourist offerings is 3.92 and thus above the middle value of 3.[6] These comparisons show that the overall quality percep-

tions were the highest in Opatija (4.06), somewhat lower in Portoroz (3.90) and the lowest in Grado (3.69). When comparing average overall quality perceptions of tourist offerings, there are only statistically significant differences between fun lovers on the one hand (3.81) and demanding tourists (4.03) and tourists with interests in nature, culture and gastronomy (3.96) on the other.

Although findings in general suggest positive quality perceptions, tourists would still be willing to increase their current consumption at these same tourist destinations (fun lovers on average by US $34, traditional summer tourists by $14, demanding tourists by $40, tourists without distinctive interests by $24, and tourists with interests in nature, culture and gastronomy by $54). In other words, this means that their potential consumption exceeds their current consumption. Current consumption is the actual realized demand. Potential consumption is a category measuring how much of what type of goods/services consumers would like to buy and use and what price they would be willing to pay. There is no guarantee that their demand will be realized. No statistically significant differences between segments and tourist destinations with respect to differences between potential and current consumption were found. However, tourists would be willing to pay more only when this would imply that the quality of products/services would increase correspondingly and thus increase their perceived benefit (Besanko et al., 2004).

Overall, our results show that for the tourist segments in the three destinations a uniform approach to potential segment targeting in the region should be adopted. As is evident from the common quality perceptions of the basic offerings, as well as from the fact that peacefulness and relaxation are the primary holiday motives of significant segments of tourists at all three destinations, the whole region could and should be regarded as one uniform destination. Complementary destination positioning without the danger of cannibalization, for example, based on culinary and cultural offerings, shopping facilities and nightlife, should be adopted. By focusing on demanding tourists, potential exists also for the development of prestige offerings. This would contribute to improved tourist offerings "at destinations" and higher tourist perceived quality, as well as facilitate promotion of destination specific competitive advantages.

The results provide two more implications for joint efforts

[6] Pair-wise comparisons using Duncan's multiple range test were applied.

| | Whole sample | | Fun lovers | | Traditional summer tourists | | Demanding tourists | | Tourists without distinctive interests | | Tourists with interests in nature, culture and gastronomy | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Estim. | Sig. | Estim. | Sig. | Estim. | Sig. | Estim. | Sig. | Estim. | Sig. | Estim. | Sig. |
| **Threshold – Overall quality score of tourist offerings** | | | | | | | | | | | | |
| Very poor | -3.787 | .000 | | | | | -3.228 | .000 | -1.761 | .007 | -2.378 | .050 |
| Poor | -1.552 | .000 | -3.406 | .000 | -1.300 | .016 | -1.404 | .022 | -.325 | .504 | -.137 | .856 |
| Fair | .513 | .027 | -.833 | .128 | .852 | .084 | .517 | .356 | 1.408 | .002 | 1.866 | .008 |
| Good | 2.242 | .000 | .939 | .086 | 2.501 | .000 | 2.184 | .000 | 3.376 | .000 | 3.799 | .000 |
| **Location Motivations (covariates)** | | | | | | | | | | | | |
| Personal safety | | | -.149 | .043 | .217 | .010 | | | | | | |
| Cultural and historic sites | .110 | .000 | | | .167 | .003 | .157 | .017 | | | | |
| Natural beauty | | | .160 | .039 | | | | | .463 | .000 | .243 | .025 |
| Tidiness and cleanliness | | | -.312 | .004 | | | | | | | .275 | .037 |
| Quality beaches | -.098 | .006 | | | | | | | | | | |
| Hospitality | .169 | .000 | .227 | .006 | | | | | | | | |
| Prices | | | | | | | | | -.152 | .041 | | |
| Lively atmosphere | 0,000 | 0,000 | | | | | | | .155 | .042 | | |
| Quality accommodation | | | | | | | | | | | .228 | .040 |
| Local transport | | | | | | | | | | | -.159 | .016 |
| Restaurant offerings | | | -.183 | .036 | .208 | .001 | | | | | | |
| Local cuisine offerings | .055 | .047 | .204 | .003 | | | | | | | | |
| Cultural events | | | | | | | -.204 | ,008 | | | -.238 | .002 |
| Nightlife and entertainment | | | | | | | .147 | .048 | | | | |
| Peacefulness | .164 | .000 | .159 | .005 | | | .386 | .000 | .227 | .002 | .271 | .003 |
| **Location Tourist destination (factor)** | | | | | | | | | | | | |
| Grado | -0.490 | 0.,000 | | | -.800 | .000 | -.930 | .000 | | | | |
| Opatija | 0[a] | | | | 0[1] | | 0[1] | | | | | |
| Portorož | -0.191 | 0.004 | | | -.393 | .0007 | Not sig | .733 | | | | |
| **Model fitting information** Sig. | .000 | | .000 | | .000 | | .000 | | .000 | | .000 | |
| **Goodness of fit** P PEARSON | .264 | | .020 | | .003 | | .730 | | .000 | | .020 | |
| P DEVIANCE | 1.000 | | 1.000 | | .693 | | 1.000 | | 1.000 | | 1.000 | |
| **Pseudo R[2]** $R^2$ Cox and Snell | .098 | | .120 | | .129 | | .116 | | .133 | | .156 | |
| $R^2$ Nagelkerke | .109 | | .135 | | .143 | | .128 | | .149 | | .175 | |
| $R^2$ McFadden | .045 | | .059 | | .060 | | .053 | | .064 | | .076 | |

**Table 4.**
Parameter Estimates for Relationship between Motivations and Overall Quality Perception Score
[1] Parameter estimate for Opatija is set to zero since Opatija represents basis for comparison among destinations.
Link function: complementary log-log.

in destination management of the region. It is important that tourists in targeted segments are compatible and can stay in the same destination at the same time without much conflict of interest. The two compatible target groups that should be given the most attention in the future compared to other segments are demanding tourists and tourists with interests in nature, culture and gastronomy. The attractiveness of the two segments lies in their size, average daily consumption per person and the premium they are willing to pay when their expectations are met.

## 5. Concluding Observations

Destinations are amalgams of tourism products, offering an integrated experience to customers. Traditionally, they are regarded as well-defined geographical areas, such as a country, an island or a town (Hall, 2000; Davidson & Maitland, 1997). On the other hand, increasingly they are seen as a perceptual concept interpreted subjectively by consumers, depending on their purpose of visit and travel itinerary (Buhalis, 2000). In our paper we adopted the latter concept. We provide indications about the role of summer destinations within the region of the northern Adriatic, which holds the important position of "sea closest to home" for many central Europeans. This can be extended to other tourists, looking for rest, relaxation and personal safety. Joint management and marketing of such destination would be therefore desirable.

Does the above approach of constructing a "macro" tourist destination of Northern Adriatic have enough support? For constructing a destination it is not only necessary that visitors perceive it as a uniform entity, but also that a political and legislative framework for tourism marketing and planning is present. This enables the DMO to be accountable for the planning and marketing of the region and to have the power and resources to undertake actions for achieving its strategic goals (Buhalis, 2000). Is it possible to set up such a framework under the given circumstances? Although Italy, Croatia and Slovenia are firmly interwoven in European integrations, there is a lot of friction in their relationships. Among unsolved issues are still those of borders, the demands of Italian citizens opting for the property lost to Slovenia and Croatia during the Second World War (so called "optants") and construction of gas terminals in Trieste Bay. These issues often lead to extreme views. One such example is the claim of a member of Slovene parliament, who urged the government to make an appeal to the citizens that they should refrain from going on holidays to Croatia (Kajzer, 2007). Alternatively, some Croatian hotel owners believe they should not be cooperating with tourist destinations in the Northern Adriatic outside Croatia, since these are their competitors (Vehovec et al., 2004).

However, there is a strong interest from all three regions to apply for grants from structural funds which are a part of the EU Cohesion policy. "Crossing borders" and consequently "building bridges" between countries of the European Union is a motto that is being primarily promoted by the Community Initiative Programme Interreg III. The European Union has an instrument that can encourage cross-border cooperation also in the field of constructing tourist destinations. The efficiency of such an instrument should be improved, especially by preventing the opportunistic behavior of those submitting the projects. Projects that can be economically justified promise a broader impact on the European economy and are supported by partner cooperation should be encouraged (Seljak, 2006). This would be a positive signal for all those submitting projects and for the administration in specific countries.

Concerning the DMO was a multinational macro location, it is now much easier to imagine that such support would be available at a fairly affordable cost. With the developments of information communication technologies (ITC), advanced destination management systems (DMS) have emerged. Increasingly, DMSs are employed as an interface between destination tourism enterprises (including principals, attractions, transportation, and intermediaries) and the external world (including tour operators, travel agencies, other DMOs). As stated by Buhalis (2007), they effectively provide the infrastructure at the destination level and can link the entire range of principals and operators in a neural network.

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# The Adoption of Service Learning in Universities Around The World

Stuart Umpleby, Gabriela Rakicevik

## Abstract

In the United States, service learning has proven to be an effective means for both education and for community development. It seems logical to assume that service learning would be similarly effective in other countries. However, universities in other countries operate quite differently from universities in the U.S. Discussions with professors from the former Soviet Union and Southeast Europe produced a list of obstacles to transferring service learning to other countries. This paper suggests some ways of minimizing these obstacles. As service learning is implemented in universities around the world, opportunities for people to learn from the experiences of others will increase.

Key words : Service Learning, University, Countries

JEL : I21, I29

## 1. A History of Service Learning in the United States

Students and faculty members at U.S. universities have been doing volunteer work with local non-governmental organizations (NGOs) for many years. Also, the agricultural and industrial extension services of mid-western universities date back to at least the Morrill Act in the 1860s. However, service learning (SL) as a method of instruction is a rather recent invention.

One indication of the spread of service learning is the growth in membership of Campus Compact. Campus Compact was founded in the mid 1980s by the presidents of three universities – Brown University, Georgetown University and Stanford University. Their intent was to encourage the presidents of other universities to encourage faculty, students and staff to engage in service activities. The "compact" is a statement that university presidents are asked to sign. If
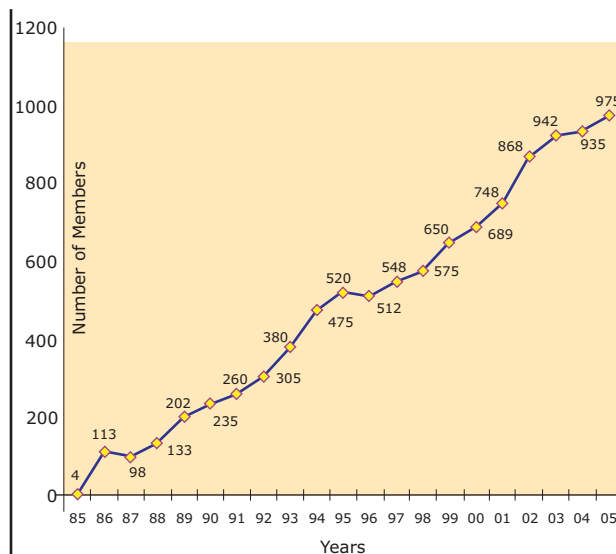


**Figure 1.**
Growth of Campus Compact Since 1985

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the president signs, that university becomes a member of Campus Compact (www.compact.org) and becomes publicly committed to engaging in service learning activities.

## 2. Literature Review of Service Learning

Service Learning has been studied from several points of view, depending on the interests of researchers. Key topics that have been discussed include implementation of SL in curricula, methods of implementation, establishment of collaboration with the community, and benefits of SL for all parties (students, faculty, community and educational institution).

The motivation of faculty members to adopt SL as a method of instruction was studied by Barbara Holland (2000). She found that there are different sources of faculty motivation. Faculty members might be motivated by personal values, values that inspire their commitment to a life of service, the success of their discipline and the quality of their teaching and research. Hence, SL and collaboration with the community can be a result of either individual or professional goals.

Measuring the outcomes of SL for the various parties has been attempted by many authors (Markus, et al., 1993; Bringle and Kremer, 1994; Giles and Eyler, 1994, Cohen and Kinsey, 1994; Hesser, 1995). In their studies, they pay most attention to the outcomes for students. The most difficult to measure or identify are the outcomes for educational institutions. The benefits for the community are obvious. Students do work that otherwise would increase the expenses of community organizations. Clearly, both students and client organizations benefit. Some participants benefit more than others, but certainly the implementation of SL as part of a course will have positive impacts on students, faculty, community and educational institutions. We assume the interactive learning model will be increasingly accepted, since it is student-oriented.

Incorporating SL in curricula enables students to gain practical experience related to their field. Students learn to cope with real problems, write case studies, establish relationships with professionals within the field, and perhaps become more creative. Experience is the most important factor in accomplishing these goals. SL in the curriculum can be implemented in several ways (Enos, Troppe, 1996).

In terms of receiving credit, SL can be a fourth-credit option (add a fourth credit to a regular three-credit course) or a stand-alone module (three credits). Also, a service learning assignment can be part of a normal course. In terms of its place in the curriculum, SL can be incorporated into an introductory course, a required course, or an elective course. SL can be included as course clusters, as capstone projects, etc. Each university needs to adjust the implementation of SL depending on the field and the abilities of students. SL can be implemented in every field, but not in every course.

Establishing partnerships between a university and its community is very important. Partnerships are usually established in three stages: designing partnerships based on values, building collaborative working relationships among partners, and sustaining the partnerships (Torres, Schaffer, 2000). In many SL activities students work as individuals on tasks arranged by NGO leaders and university administrators. However, in graduate management classes students often do projects as groups with organizations where one student is employed.

## 3. Stages in the Development of Service Learning in the U.S.

The growth of service learning as a teaching method in the U.S. can be described as passing through several stages.

1. Students have long worked in groups to complete a large assignment. This is a step beyond lectures, exams, and term papers.

2. At least by the 1970s students began doing group projects with clients in organizations. By the end of the 1970s many projects were not just hypothetical projects or laboratory exercises. Rather, they became projects with real clients with real problems.

3. By the 1980s the term "service learning" was invented and defined as a pedagogical method.

4. Books and articles on service learning began to appear in the literature on education.

5. Articles on service learning began to appear in discipline-focused journals.

# 4. Extending Service Learning to Other Countries

As service learning has become more widely practiced in the U.S., work with students and clients overseas has occurred. The extension of SL beyond the local area has been made possible by the internet. Student projects at The George Washington University provide some examples. In the mid-1990s graduate students in business in Washington and in Moscow communicated via email in an effort to identify some possibilities for joint ventures. These contacts were possible because the Russian professor, Pavel Makeyenko, had been a visiting scholar in Washington and knew Stuart Umpleby at GWU. A second project between the students of Makeyenko and Umpleby attempted to find a U.S. firm that made management training videos and that would be willing to have them translated and marketed in Russia. (Makeyenko and Umpleby, 2005) Figure 2 depicts the evolution of SL projects in the U.S.
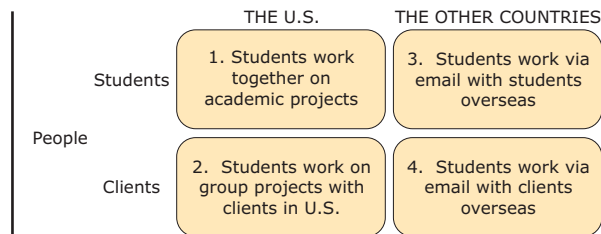


**Figure 2.**
The Evolution of SL Projects in the Field of Management

# 5. Some Obstacles to Implementing Service Learning in Other Countries

Since SL has been successful in the U.S. both as a pedagogical method and in helping the organizations of civil society, it seems reasonable to ask whether SL, if implemented at universities in other countries, would be effective in other countries as well. In Spring 2006 a group of visiting professors from the former Soviet Union and the former Yugoslavia were asked this question. They described several obstacles to implementing service learning in their countries. Here are their answers.

*Low Faculty Salaries*

Faculty salaries in many countries are quite low. Often faculty members need to teach at more than one university to earn money, or they take second or third jobs outside of academia in order to provide for their families. Universities in other countries usually do not have financial resources to encourage faculty members to be innovative in the way they teach. Faculty members often do consulting to make extra money. In countries where academic incomes are low, any activity that looks like consulting is only of interest if it earns income. Usually faculty members do not want to share this work and income with students. Professors may see students as competitors for consulting assignments. If so, professors may argue that students do not yet know the theory and that they need to study for exams. Professors may say students should focus on learning theory first.

*Students Need Money*

Frequently, internships are part of the educational experience in other countries. However, internships are intended to provide business experience, not learning through service with NGOs. Senior students sometimes have an obligatory internship for which they are required to write a report. Internships provide a connection to practice but usually are arranged with financially successful businesses rather than with financially struggling NGOs. However, students may well support service learning with NGOs as an effective learning method.

*Service Learning is Not Known or Understood in Many Countries*

In former communist countries, "voluntary activity" usually meant a "work day" or "subotnik," for example, harvesting potatoes or cotton or shoveling snow off roads. Hence, people are likely to have a negative view of service learning. They may see it as compulsory, uncompensated work. Another problem is that in some countries the selection of clients for service learning projects may be influenced by political considerations. For example, faculty members and students might be told to work with one political faction and not another. Consequently, historical experience will cause some people to interpret SL as a form of unpaid labor to aid the politically powerful.

Faculty motivation could be a big obstacle to implementing service learning in curricula. Faculty might have a lack of confidence in their skills and knowledge about SL. If they had no experience with SL as students, they will be cautious about introducing SL in their courses. Accordingly, training of faculty may be required.

Service learning as a concept and practice is not yet understood by faculty and administrators in other countries. It needs to be explained and demonstrated.

Faculty and students may feel that projects would be additional work, both for students and faculty, rather than a different teaching method. Local organizations with which students would work are also unfamiliar with service learning. The concept and practice will have to be explained. Currently there is very little connection between universities and local organizations in most countries.

In the U.S., the functions of a university are usually defined as education, research, and service. In the Soviet Union universities engaged in education. Institutes performed research. In many countries "service" is not widely recognized as one of the functions of a university. Widespread acceptance of service as a function of universities will take time. Ideally, the concept of SL would be supported by all professors in a department or school. This does not mean that SL should be incorporated into all courses. However, it is important to encourage the faculty members who would like to implement SL.

### The Curriculum Limits What Can Be Done

In many countries the curriculum is designed by the Ministry of Education, not faculty members at universities. If the curriculum does not include service learning, a faculty member can add it only as an additional requirement. Sometimes there are obstacles not in how courses are taught, but in the curriculum for a degree. Sometimes the curriculum consists of only required courses. Hence, there is no room in the curriculum for innovative courses that involve service learning. Faculty members often do not have freedom to design curricula. And students sometimes do not have elective courses they can take.

Companies choose the best students for internships. This practice prods students to study and obtain good grades. Students strive to have internships with businesses in order to earn money and to find jobs after graduation, not to do service with NGOs. Therefore, the ways that students are motivated to study may be in conflict with service learning.

### The Way Courses Are Taught Limits Teaching Methods

In some countries, students do not decide until the end of the course whether they want to take the test in the course. Often students only listen to lectures and do not seek credit for the course by taking the test. This means that students are not committed to doing the work in the course until the end of the semester. This arrangement means students cannot be required to do projects during the semester.

## 6. Strategies for Removing the Obstacles

Perhaps in coming years universities around the world will adopt as part of their mission working with organizations in the local community. This may be done in part to achieve a higher level of performance from students, but also because a university is a key resource for social change and improvement. The functions of a university would then be defined as education, research, and service.

To increase the amount of service learning done in a university it is necessary to provide support in the form of help with logistics, planning, evaluation and communication. Also, more universities can be encouraged to adopt SL as a teaching method by creating an organization like Campus Compact in each country.

Establishing strong, stable relations with the local community and partnerships with institutions is crucial. Without collaboration with the local community it is impossible to implement any kind of SL.

Creating incentives and rewards for faculty members is very important for successful motivation, particularly in countries where faculty members must work more than one job to support their families. Creating a positive image of faculty engaged in SL is important.

To remove obstacles in the curriculum, special courses that include a service learning component could be created. In these courses students would commit to the course at the beginning of the semester. Perhaps someday SL will be added to the Bologna Process.

## 7. Service Learning at Different Stages of Country Development

Zhelyu Vladimirov (2006) has suggested that "service learning" will be interpreted differently depending on the stage of development of a country. He lists the key concerns at different stages of country development.

1. Basic survival. Faculty members will work on SL only if they are paid to do so.

2. Internships for students. Students need income as well as faculty. Faculty may supervise internships to help students.

3. Consulting jobs for faculty.  Faculty motivation is provided by the possibility of supplementary income in the future for work as a consultant.

4. Alumni groups may start service projects.  In more prosperous societies alumni may contribute money to universities for scholarships for students.

## 8. Cultural Differences and Service Learning

When this paper was presented at a conference on Community Research and Learning at American University in Washington, DC, on April 29, 2006, a question was raised about cultural differences.  It was suggested that perhaps community service is done differently in different countries. For example, the concept of service learning may be the way that people in individualist countries help others.  In collectivist societies people may help others through ties of family, community, religion, or tribe.  This is an important question.  The answer for the moment is that when service learning is described to people from collectivist societies, and they are asked whether such activities exist in their countries, they have replied that service learning is not used as a pedagogical method for the reasons described above.  Service learning can be adopted either as a way of helping the local community or as an effective teaching method, or both.

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# Optimum Currency Areas Theory: An Empirical Application to Turkey

Itir Ozer, Ibrahim Ozkan, Okan H. Aktan

## Abstract

This study aims to assess Turkey's position relative to European countries with respect to the optimum currency areas (OCA) criteria, taking Germany as the center country and employing Mahalanobis distance as a similarity measure. To this end, we followed a novel approach in the application of Hodrick-Prescott and Baxter-King filters to the industrial production series and the real interest rates under three cases. We then computed OCA similarity indices, calculated countries' similarities with respect to Germany and their nearest neighbors, and compared the results. Our results show that Turkey is the second furthest neighbor country to Germany after Croatia in the first two cases. However, Turkey is the third furthest country to Germany after Norway and Romania in the third case

Key words: Optimum Currency Areas Theory, Turkey, Rate

JEL : F15

## 1. Introduction

Optimum currency areas (OCA) theory aims to define the optimal geographic domain of a single currency. It was developed by the seminal contributions of Mundell (1961), McKinnon (1963), and Kenen (1969). OCA theory can be examined in three phases. The first is the pioneering phase of the 1960s and early 1970s, followed by the reconciliation phase of the 1970s. In the third phase, OCA theory was reassessed and operationalized through empirical studies beginning in the 1980s.

Empirical studies can be classified as econometric studies, or studies that employ the techniques of pattern recognition. Eichengreen and Bayoumi (1996), Artis and Zhang (2001), Artis and Zhang (2002), Boreiko (2002), Komárek, Cech and Horváth (2003), and Kozluk (2005) applied the techniques of pattern recognition to a set of variables suggested by the OCA theory. Pattern recognition is the act of taking raw data (which are based on a priori information or statistical information formed from patterns) and taking an action based on the "category" of the pattern (Duda, Hart, and Stork 2000, p. 15).

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This paper attempts to assess Turkey's position relative to twenty-four European countries with respect to the OCA criteria, taking Germany as the center country. The nearer (more similar) a country is to Germany in terms of OCA criteria, the more suitable it is for this country to be a part of the currency area centered around Germany. Synchronization in business cycles, volatility in the real exchange rates, synchronization in the real interest rates, the degree of trade integration, and convergence of inflation are the OCA criteria included in our analysis, following Artis and Zhang (2001), Artis and Zhang (2002), Boreiko (2002), and Kozluk (2005). Canada and Japan were inlcuded as the control group countries in order to determine whether they can be sharply distinguished from the European countries. We have constructed our analysis under three cases in which we have applied the Hodrick-Prescott (H-P) and the Baxter-King (B-K) filters to industrial production series and real interest rates. The application of H-P and B-K filters to industrial production series and the real interest rates as used in this paper is a novel approach in this area. We then employed Mahalanobis distance as a similarity measure and computed OCA similarity indices. Afterwards, in all three cases we calculated Turkey's and each European country's similarity with respect to Germany, presented the countries' nearest neighbors for Case III, and compared the results of the application of different filtering techniques, as they produce different results for the same data. In order to assess the relative position of the control group, we carried out principal component analysis. The remaining of the paper is as follows. In Section 2, we briefly discuss data and methodology. In Section 3, we provide the results. Section 4 concludes our paper.

## 2. Data and Methodology

Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Turkey, and the UK are the countries in the sample. Canada and Japan were included as control group countries.

### 2.1. Filtering Techniques and OCA Criteria

OCA studies carried out with the techniques of pattern recognition generally assume that Germany is the center country (Artis and Zhang (2001), Artis and Zhang (2002), Boreiko

(2002), and Kozluk (2005)). The criteria widely used in these studies are synchronization in business cycles, volatility in the real exchange rates, synchronization in the real interest rates, the degree of trade integration and convergence of inflation. We included the same criteria in our analysis. Artis and Zhang (2001), Artis and Zhang (2002), and Kozluk (2005) included labor market flexibility as another OCA criterion in their analysis. However, because of the lack of data for Turkey and most of the countries, we excluded this criterion from our analysis.

In OCA theory literature, for the calculations of two of the criteria synchronization in business cycles and synchronization in the real interest rates, monthly industrial production series and monthly real interest rates have been detrended with the application of the Hodrick-Prescott (H-P) filter (Hodrick and Prescott (1997)). In some atheoretic studies of business cycles (Murray (2003) and Takaya (2005)), the Baxter-King (B-K) filter has been used to obtain the cyclical components of industrial production series (Baxter and King (1999)). Since the application of different filtering techniques produce different results for the same data, we employed both the H-P and the B-K filtering techniques in our analysis.

Hodrick-Prescott (H-P)Filter. The H-P filter decomposes a time series, $y_t$, into an additive cyclical component, $y^c_t$, and a growth component, $y^g_t$

$$y_t = y^g_t + y^c_t \tag{1}$$

Applying the H-P filter involves minimizing the variance of the cyclical component, $y^c_t$, subject to a penalty for the variation in the second difference of the growth component, $y^g_t$

$$\{y^t_g\}^{T+1}_{t=0} = argmin \sum_{t=1}^{T} \left[ (y - y^g_t)^2 + \lambda \left[ (y^g_{t+1} - y^g_t) - (y^g_t - y^g_{t-1}) \right]^2 \right] \tag{2}$$

where $\lambda$, the smoothing parameter, penalizes the variability in the growth component. The larger the value of $\lambda$, the smoother the growth component. As $\lambda$ approaches infinity, the growth component corresponds to a linear time trend (Guay and St-Amant, 1997, p. 2-3).

There are two different approaches to the question of choosing the smoothing parameter. The first approach is the free choice of smoothing parameter. In this approach, the smoothing parameter is usually fixed in an arbitrary way (Schlicht 2005, p. 99). In the OCA studies, Artis and Zhang (2001), Artis and Zhang (2002), and Boreiko (2003) have set

the smoothing parameter's value at 50,000 for relatively noisy industrial production series and real interest rates, whereas Kozluk (2005) has used 14,400 for the smoothing parameter.

The other approach is to find the optimum smoothing parameter by statistical methods, i.e., an automatic estimation method. In this approach, the optimum smoothing parameters are assigned values, which are calculated based on the nature of the time series data (Dermoune, Djehiche and Rahmania, 2006, p. 2-4) following Schlicht (2005). Let $x=(x_1, x_2, \ldots, x_T)$ be a non-stationary time series with trend and cyclical components. Then, consistent estimator, $\lambda$, can be written as:

$$\hat{\lambda} = max\left\{0 - \frac{1}{4}\left(\frac{\frac{3}{2} + (T-3)\sum_{j=1}^{T-2} Px(j)^2}{(T-2)\sum_{j=1}^{T-3} Px(j)Px(j+1)}\right)^{-1}\right\} \quad (3)$$

where, P matrix is:

$$P = \begin{pmatrix} 1 & -2 & 1 & \ldots & \ldots & 0 \\ 1 & 1 & -2 & 1 & \ldots & 0 \\ & \ldots & \ldots & \ldots & \ldots & \\ 0 & \ldots & \ldots & 1 & -2 & 1 \end{pmatrix} \quad (4)$$

Baxter-King (B-K) Filter. The B-K filter computes the cyclical components, $\{y_t\}_{t=1}^{T}$ of the given time series, $\{x_t\}_{t=1}^{T}$. It is an approximation of an ideal bandpass filter, which passes only the signals that have periods between selected lower and upper periods. It relies on the use of a symmetrix finite odd-order $M=2K+1$ moving average so that:

$$\hat{y}_t = \sum_{n=-K}^{K} \hat{B}_n x_{t-n} = \hat{B}_0 x_t + \sum_{n=1}^{K} \hat{B}_n (x_{t-n} + x_{t+n}) \quad (5)$$

A sequence $\hat{B}_{t,j}$ that minimizes the mean squared error between, $y_t, \hat{y}_t$, given by:

$$\{\hat{B}_{t,j}\} = arg\ min\ E\{(y_t - \hat{y}_t)^2\} \quad (6)$$

The set of $M$ coefficients $\hat{B}_j$ is obtained by applying condition (6) to the ideal filte r coefficients imposing symmetry and stationary restrictions. The solution takes the form:

$$\hat{B}_j = B_j - 1/M \sum_{n=-K}^{K} B_n \quad (7)$$

Filtering in time domain using moving averages involves the loss of $2K$ data values. In Baxter and King (1999), a value of $K=12$ for the passband [1.5, 8] years is found to be basically equivalent to higher values, such as 16 or 20.

In this study, we constructed our analysis under three cases in order to determine the differences in the results when different filtering techniques are employed. In Case I, we applied the H-P filter to the industrial production series and the real interest rates, in which the smothing parameter is fixed at 50,000 following Artis and Zhang (2001), Artis and Zhang (2002), and Boreiko (2003). In Case II, we H-P filtered the industrial production series as in Case I, since industrial production series involve trend. As real interest rates are not expected to follow a long-term trend, we have employed the H-P filter to the real interest rates with the estimated smoothing parameters. The smoothing parameters for the countries in the sample for synchronization in the real interest rates are given in Table 1.

| Austria | 0.12 | Netherlands | 0.09 |
|---|---|---|---|
| Belgium | 0.22 | Norway | 0.49 |
| Croatia | 0.47 | Poland | 1.4 |
| Cyprus | 0.8 | Portugal | 0.32 |
| Czech Republic | 0.07 | Romania | 0.37 |
| Denmark | 0.98 | Slovak Republic | 3.21 |
| Finland | 0.13 | Slovenia | 0.69 |
| France | 0.12 | Spain | 0.87 |
| Germany | 1.21 | Sweden | 0.11 |
| Greece | 0.15 | **Turkey** | **1.1** |
| Hungary | 0.22 | United Kingdom | 0.1 |
| Ireland | 0.15 | *Canada* | 0.94 |
| Italy | 0.06 | *Japan* | 0.27 |
| Luxembourg | 0.18 | | |

**Table 1.**
The Smoothing Parameters Assigned by the Automatic Estimation for the Countries in the Sample for Synchronization in the Real Interest Rates

In Case III, we employed the Baxter-King (B-K) filter to both the industrial production series and the real interest rates with a lower period of 13 and an upper period of 86 following the study of Burns and Mitchell (1946). These three cases are shown in Table 2.

| | Case I | Case II | Case III |
|---|---|---|---|
| **Industrial Production Series** | H-P Filter, λ=50,000 | H-P Filter, λ=50,000 | B-K Filter |
| **Real Interest Rates** | H-P Filter, λ=50,000 | H-P Filter, λ automatic estimation | B-K Filter |

**Table 2.**
The Three Cases in which Different Filtering Techniques are Applied to Industrial Production Series and the Real Interest Rates

OCA Criteria. In this study, OCA variables have been computed as follows:

**1) Synchronization of business cycles** has been represented by the cross-correlation of the cyclical components of the deseasonalized industrial production series. The cross-correlations were measured for all the countries in the sample with reference to Germany. Since correlation results in values between −1 and +1 inclusive, we subtracted correlation values from one, so the new values are between zero and two. Zero represents perfect positive correlation, and two represents a perfect negative correlation. We used a distance measure as a similarity measure. Similarly, in order to have a 0 in distance value for perfect correlation, we subtracted correlation values from 1. Therefore, perfect correlation should result in a 0 distance value.

**2) Volatility in the real exchange rates** was represented by the standard deviation of the log-difference of real bilateral DM exchange rates before 1999. After 1999, the Euro has been used instead of DM for exchange rates. Real exchange rates were obtained by deflating nominal rates by relative wholesale (producer) price indices. For Portugal, we have used the consumer price index because of lack of data.

**3) Synchronization in the real interest rates** was represented by the cross-correlation of the cyclical components of the real interest rate cycle of a country with that in Germany. Real interest rates were obtained by deflating short-term nominal rates by consumer price indices. Cross-correlations were measured for all the countries in the sample with reference to Germany, and again the values were set between zero and two.

4) **The degree of trade integration** was measured by $(x_i^{EU-25} + m_i^{EU-25})(x_i + m_i)$ where $x_i$ and mi are exports and $m_i$ imports (of goods) of country i, respectively, and superscript EU-25 represents European Union countries as of May 2004.

5) **Convergence of inflation** was measured by $e_i$-$e_g$, where $e_i$ and eg are the rates of inflation in country i and Germany, respectively. The calculated values of the OCA variables for each country are given in Table 3 for Case I.

In Case I, Turkey's synchronization of business cycles with Germany had a value of 0.5966. The cross-correlation of the cyclical components of industrial production series between Germany and Turkey are given in Figure 1, whereas the cyclical components of the industrial production series of Germany and Turkey are given in Figure 2.

Figure 1 shows lagged correlation of the series used in the synchronization of business cycles. Turkey's business cycle followed Germany's business cycle with an average lag of four months. As can be seen in Table 3, the Netherlands, Ireland, Slovak Republic, Norway, Cyprus, Romania, Czech Republic, Croatia and Portugal's synchronization of business cycles with Germany were also low. Turkey's synchronization of business cycles with Germany was relatively better than these countries. However, Austria, Hungary, Finland, Belgium, Slovenia, the United Kingdom, Greece, Poland,

| | Synchronisation in Business Cycles[b] | Volatility in the Real Exchange Rates[c] | Synchronisation in the Real Interest Rates[b] | The Degree of Trade Integration[d] | Convergence of Inflation[e] |
|---|---|---|---|---|---|
| Austria | 0.0965 | 0.0046 | 0.5336 | 76.38 | 0.3436 |
| Belgium | 0.2821 | 0.0121 | 0.7062 | 75.52 | 0.8296 |
| Croatia | 0.9736 | 0.0253 | 1.5117 | 67.49 | 1.3846 |
| Cyprus | 0.8874 | 0.0047 | 0.5391 | 63.82 | 0.6046 |
| Czech Republic | 0.9351 | 0.0129 | 0.7322 | 80.03 | -0.1080 |
| Denmark | 0.4276 | 0.0046 | 0.0817 | 70.49 | -0.1454 |
| Finland | 0.2459 | 0.0044 | 0.6910 | 62.00 | -1.0923 |
| France | 0.4427 | 0.0028 | 0.6755 | 66.83 | -0.2098 |
| Greece | 0.3882 | 0.0047 | 0.7480 | 57.33 | 1.6073 |
| Hungary | 0.1536 | 0.0206 | 1.1266 | 75.27 | 1.5975 |
| Ireland | 0.6647 | 0.0046 | 0.7156 | 62.75 | 0.4617 |
| Italy | 0.4642 | 0.0031 | 0.1487 | 59.61 | 0.0313 |
| Luxembourg | 0.5957 | 0.0111 | 0.4748 | 81.54 | 0.5360 |
| Netherlands | 0.6107 | 0.0042 | 0.6878 | 66.98 | -0.2906 |
| Norway | 0.7397 | 0.0342 | 0.4395 | 75.46 | -0.4319 |
| Poland | 0.3994 | 0.0261 | 0.2802 | 76.36 | 0.1528 |
| Portugal | 1.1110 | 0.0053 | 0.7600 | 78.20 | 0.3397 |
| Romania | 0.9328 | 0.0338 | 0.6828 | 71.61 | 7.0354 |
| Slovak Republic | 0.6833 | 0.0145 | 1.3815 | 83.13 | 0.7549 |
| Slovenia | 0.3025 | 0.0145 | 0.7545 | 74.16 | 0.5250 |
| Spain | 0.5056 | 0.0033 | 0.0715 | 69.25 | 1.4138 |
| Sweden | 0.4373 | 0.0123 | 0.3648 | 67.49 | -1.5007 |
| **Turkey** | **0.5966** | **0.0672** | **0.7215** | **49.81** | **6.2252** |
| United Kingdom | 0.3170 | 0.0161 | 0.8902 | 53.38 | 0.8768 |
| *Canada* | 0.3371 | 0.0241 | 0.5195 | 8.38 | 0.2802 |
| *Japan* | 0.3931 | 0.0252 | 1.0793 | 14.43 | -2.2271 |

**Table 3.**
OCA Criteria[a], Case I
[a] OCA criteria values for Germany are not given in Table 3 since Germany is the center country. For Germany, the only variable that is different from zero in value is the degree of trade integration and it is equal to 62.96.
[b] Values are between zero and two, where zero represents perfect synchronization.
[c] Volatility in the real exchange rates has been calculated for the values after January 1999.
[d] Degree of trade integration are 2004 data.
[e] Convergence of inflation are 2005 data.

Denmark, Sweden, France, Italy, and Spain's synchronization of business cycles with Germany were better than Turkey's, whereas Luxembourg has a synchronization value of 0.5957 which was slightly better than Turkey's.
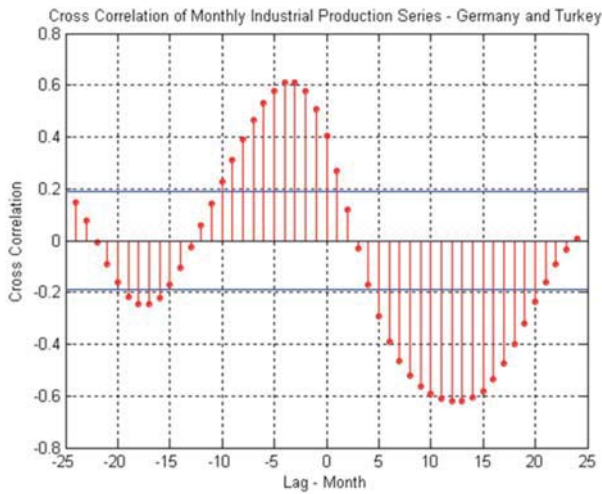


**Figure 1**
Case I: Cross-correlation of Industrial Production Series of Germany and Turkey
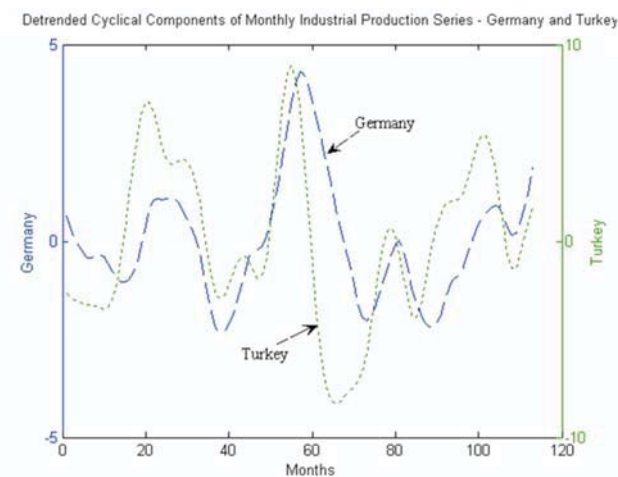


**Figure 2.**
Case I: Cyclical Components of Industrial Production Series of Germany and Turkey

The volatility of the real New Turkish Lira had the highest value in the sample. This can be explained by the fact that Turkey experienced a currency crisis in February 2001 and a long history of high inflationary periods. We did not eliminate the high volatility of the Turkish Lira in 2001 caused by the currency crisis; therefore the high volatility of the Turkish Lira was expected in the results. When we treated big deviations observed during the currency crisis as outliers, we found better values. For example, when the ten-month period between February 2001 and December 2001 was excluded from the analysis, volatility of the real Turkish Lira became 0.032980 until February 2001, and 0.049919 after

December 2001, whereas volatility of the real Turkish Lira between February 2001 and December 2001 had a value of 0.12692, which is quite high. This high volatility of the real Turkish lira shows the effect of the currency crisis in February 2001. For Turkey, we included this period in order to make a realistic analysis. However, it should be noted that this currency crisis adversely affected both the volatility of the real Turkish Lira and Turkey's real interest rate snychronization in our analysis.

Turkey's real interest rate synchronization with Germany had a value of 0.7215. This value was better than Czech Republic, Greece, Slovenia, Portugal, United Kingdom, Hungary, Slovak Republic and Croatia's synchronizations of the real interest rates with Germany, but worse than those of Spain, Denmark, Italy, Poland, Sweden, Norway, Luxembourg, Austria, Cyprus, France, and Romania, Netherlands,



**Figure 3.**
Case I: Cross-correlation of Real Interest Rates of Germany and Turkey



**Figure 4.**
Case I: Cyclical Components of Real Interest Rates of Germany and Turkey

Finland, Belgium, and Ireland. The cross-correlation of real interest rates of Germany and Turkey are given in Figure 3, whereas cyclical components of the real interest rates of Germany and Turkey are given in Figure 4.
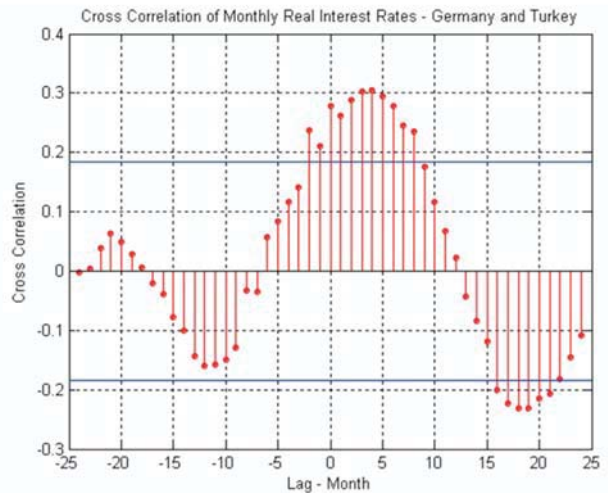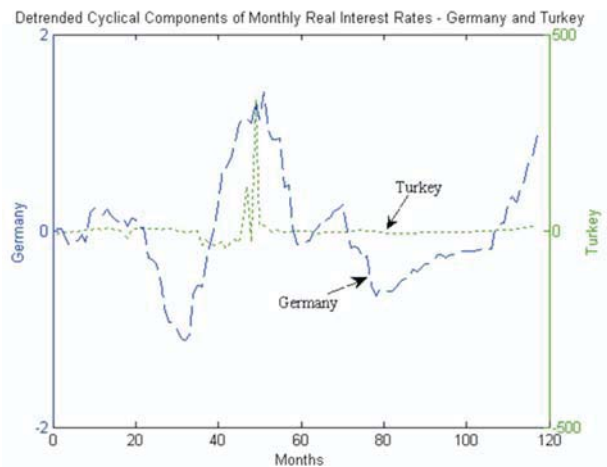
In Figure 3, the highest cross-correlation value of the real interest rates of Germany and Turkey was measured at 4 lags.

According to Table 3, Turkey had the lowest degree of trade integration (excluding Japan and Canada) and had the second worst convergence of inflation value after Romania when compared to the other European countries.

Table 4 shows the calculated values of the OCA variables for Cases II and III.

In Case II, Turkey's real interest rate synchronization with Germany improved and became 0.4547 compared to Case I (0.7215). Besides, compared to Case I, the Netherlands, France, Belgium, Romania, Italy, Finland, and Ireland's synchronizations of the real interest rates with Germany worsened; these countries' synchronization values were worse than Turkey's. Cyclical components of real interest rates of Germany and Turkey which improved in Case II compared to Case I are given in Figure 5.

| | Case II | | Case III | | | | |
|---|---|---|---|---|---|---|---|
| | Synchronisation in Business Cycles | Synchronisation in the Real Interest Rates | Synchronisation in Business Cycles | Synchronisation in the Real Interest Rates | Volatility in the Real Exchange Rates | The Degree of Trade Integration | Convergence of Inflation |
| Austria | 0.0965 | 0.3633 | 0.1666 | 0.8889 | 0.0046 | 76.38 | 0.3436 |
| Belgium | 0.2821 | 0.5183 | 0.2679 | 1.1420 | 0.0121 | 75.52 | 0.8296 |
| Croatia | 0.9736 | 1.6042 | 0.6137 | 1.5185 | 0.0253 | 67.49 | 1.3846 |
| Cyprus | 0.8874 | 0.4384 | 0.9908 | 0.3985 | 0.0047 | 63.82 | 0.6046 |
| Czech Republic | 0.9351 | 1.2068 | 0.5229 | 0.5238 | 0.0129 | 80.03 | -0.1080 |
| Denmark | 0.4276 | 0.0497 | 0.3813 | 0.0784 | 0.0046 | 70.49 | -0.1454 |
| Finland | 0.2459 | 0.5648 | 0.2638 | 1.0970 | 0.0044 | 62.00 | -1.0923 |
| France | 0.4427 | 0.5049 | 0.6445 | 1.1125 | 0.0028 | 66.83 | -0.2098 |
| Greece | 0.3882 | 1.1608 | 0.3918 | 0.9497 | 0.0047 | 57.33 | 1.6073 |
| Hungary | 0.1536 | 1.4870 | 0.2356 | 0.9508 | 0.0206 | 75.27 | 1.5975 |
| Ireland | 0.6647 | 0.6415 | 0.6387 | 1.1186 | 0.0046 | 62.75 | 0.4617 |
| Italy | 0.4642 | 0.5366 | 0.5228 | 0.1182 | 0.0031 | 59.61 | 0.0313 |
| Luxembourg | 0.5957 | 0.2620 | 0.7352 | 0.8319 | 0.0111 | 81.54 | 0.5360 |
| Netherlands | 0.6107 | 0.4927 | 0.6992 | 1.1388 | 0.0042 | 66.98 | -0.2906 |
| Norway | 0.7397 | 0.2538 | 0.8497 | 0.7174 | 0.0342 | 75.46 | -0.4319 |
| Poland | 0.3994 | 0.3448 | 0.3982 | 0.3252 | 0.0261 | 76.36 | 0.1528 |
| Portugal | 1.1110 | 0.5307 | 0.9859 | 1.2249 | 0.0053 | 78.20 | 0.3397 |
| Romania | 0.9328 | 0.5271 | 0.9158 | 1.0528 | 0.0338 | 71.61 | 7.0354 |
| Slovak Republic | 0.6833 | 1.3264 | 0.2643 | 1.4626 | 0.0145 | 83.13 | 0.7549 |
| Slovenia | 0.3025 | 0.8753 | 0.3463 | 0.9651 | 0.0145 | 74.16 | 0.5250 |
| Spain | 0.5056 | 0.2794 | 0.5619 | 0.0207 | 0.0033 | 69.25 | 1.4138 |
| Sweden | 0.4373 | 0.3722 | 0.5813 | 0.3213 | 0.0123 | 67.49 | -1.5007 |
| Turkey | **0.5966** | **0.4547** | **0.4498** | **0.6090** | **0.0672** | **49.81** | **6.2252** |
| United Kingdom | 0.3170 | 1.0504 | 0.4456 | 1.1981 | 0.0161 | 53.38 | 0.8768 |
| *Canada* | 0.3371 | 0.4975 | 0.3641 | 0.2441 | 0.0241 | 8.38 | 0.2802 |
| *Japan* | 0.3931 | 1.0198 | 0.4027 | 1.3631 | 0.0252 | 14.43 | -2.2271 |

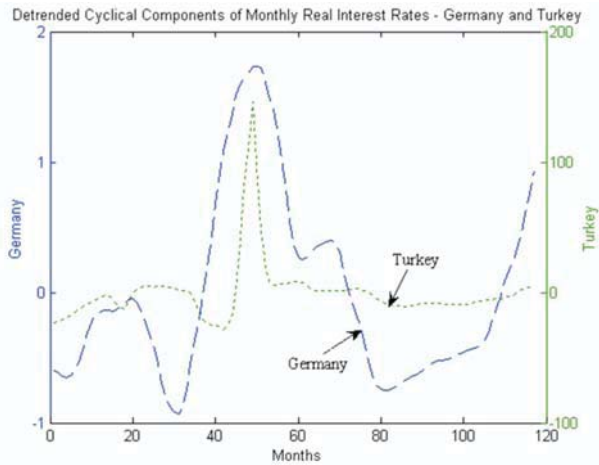**Table 4.**
OCA criteria, Cases II and III

**Figure 5.**
Case II: Cyclical Components of Real
Interest Rates of Germany and Turkey

In Case III, Turkey's synchronization of business cycles with Germany improves and becomes 0.4498 compared to Cases I and II (0.5966). Besides, Slovak Republic's synchronization of business cycles with Germany improves and becomes better than Turkey's compared to Cases I and II, whereas Italy, Spain, Sweden, France, and Luxembourg's synchronizations of business cycles with Germany worsen and become worse than Turkey's compared to Cases I and II. Cyclical components of the industrial production series of Germany and Turkey which have improved in Case III compared to Cases I and II are given in Figure 6.

In Case III, Turkey's real interest rate synchronization with Germany became 0.6090. This synchronization value was better than Case I (0.7215) but worse than Case II (0.4547). When Cases I and III are compared for other countries in the sample, it was observed that the Czech Republic's real interest rate synchronization with Germany improved in
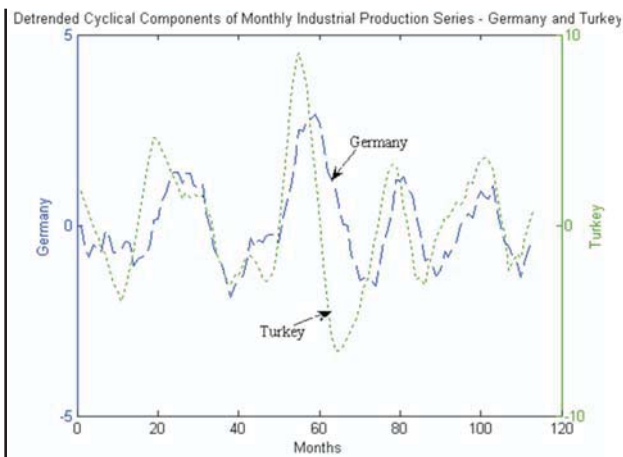


**Figure 6.**
Case III: Cyclical Components of
Industrial Production Series of Germany and Turkey

Case III and became better than Turkey's, whereas Norway, Luxembourg, Austria, Romania, Finland, France, Ireland, Netherlands, and Belgium's real interest rate synchronizations with Germany worsened in Case III and became worse than Turkey's. When Cases II and III were compared, it was observed that Italy and Czech Republic's real interest synchronizations with Germany improved in Case III and became better than Turkey's, whereas Norway, Luxembourg, and Austria's real interest rate synchronizations with Germany worsened in Case III and became worse than Turkey's. Cyclical components of real interest rates of Germany and Turkey which improved in Case III compared to Case I but worsened compared to Case II are given in Figure 7.
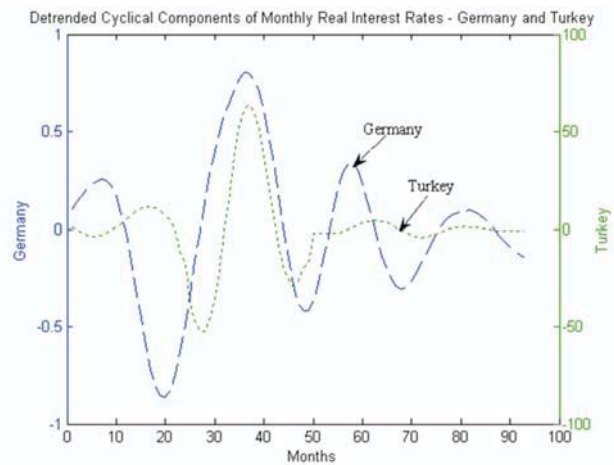


**Figure 7.**
Case III: Cyclical Components of Real
Interest Rates of Germany and Turkey

All of these results under different filtering techniques indicate that the results are very sensitive to the filtering techniques employed. Consequently, the proper use of filtering techniques gains importance, requiring that findings be evaluated cautiously.

## 2.2. OCA Similarity Matrix

In this study, we calculated similarity measures for every country in the sample in terms of OCA criteria, taking Germany as the center country. In general, distance measures were used as similarity measures. Among these, the Euclidian distance measure was the most widely used:

Let $y_i=(y_{i1......}, y_{i5})$ be a vector of OCA criteria for country i, where, i=1,…,27,

$y_{i1}$ = synchronization in business cycles, $y_{i2}$ = volatility in the real exchange rates,

$y_{i3}$ = synchronization in the real interest rates, $y_{i4}$ = the degree of trade integration,

$y_{i5}$ = convergence of inflation, and OCAdata matrix, Y=($Y_1^T$, $Y_2^T$,....., $Y_{27}^T$ ).

The Euclidian distance between country i and country j is given as:

$$Dist_{Euclidian}(y_i, y_j) = \sqrt{(y_i - y_j)^T (y_i - y_j)} \quad (8)$$

A drawback of this measure is that if the mean of any one of the variables is higher than the others, this variable dominates the similarity measure. In order to neutralize this effect, two methodologies have been widely used in literature. In the first one, variables are standardized as in Artis and Zhang (2002), Boreiko (2002), and Kozluk (2005). In the second, Mahalanobis distance has been used (Mahalanobis (1936)). Mahalanobis distance between country i and country j is given by:

$$Dist_{Mahalanobis}(y_i, y_j) = \sqrt{(y_i - y_j)^T \Sigma^{-1} (y_i - y_j)} \quad (9)$$

where $\Sigma$ is the covariance matrix of Y. The OCA similarity (distance) matrix can be written as:

$$D = \begin{bmatrix} d_{1,1} & d_{1,2} & ... & d_{1,27} \\ d_{2,1} & d_{2,2} & ... & d_{2,27} \\ ... & ... & ... & ... \\ d_{27,1} & d_{27,2} & ... & d_{27,27} \end{bmatrix} \quad (10)$$

where $d_{ij}$ is the similarity measure between country *i* and country *j*. The OCA similarity matrix for Case III is given in Appendix B.

## 3. Result

Table 5 shows the similarity values of each country with respect to the center country, Germany, for all three cases.

| CASE I | | CASE II | | CASE III | |
|---|---|---|---|---|---|
| Denmark | 1.68 | Austria | 1.28 | Denmark | 1.70 |
| Austria | 1.73 | Denmark | 1.67 | Austria | 2.09 |
| Italy | 1.81 | Belgium | 1.79 | Italy | 2.19 |
| Spain | 1.89 | Finland | 1.81 | Spain | 2.30 |
| Finland | 2.16 | Spain | 1.91 | Slovenia | 2.44 |
| Belgium | 2.19 | France | 1.91 | Hungary | 2.63 |
| Slovenia | 2.22 | Italy | 2.04 | Greece | 2.69 |
| France | 2.24 | Slovenia | 2.28 | Finland | 2.72 |
| Luxembourg | 2.49 | Luxembourg | 2.42 | Belgium | 2.74 |
| Greece | 2.50 | Netherlands | 2.45 | Czech Republic | 2.84 |
| United Kingdom | 2.56 | Sweden | 2.62 | Poland | 3.13 |
| Sweden | 2.59 | Ireland | 2.70 | United Kingdom | 3.19 |
| Netherlands | 2.67 | United Kingdom | 2.70 | Sweden | 3.20 |
| Ireland | 2.83 | Poland | 2.95 | Ireland | 3.39 |
| Poland | 2.92 | Greece | 3.07 | France | 3.42 |
| Cyprus | 3.35 | Cyprus | 3.32 | Luxembourg | 3.49 |
| Hungary | 3.40 | *Canada* | 3.77 | Slovak Republic | 3.54 |
| *Canada* | 3.76 | Hungary | 3.87 | Netherlands | 3.63 |
| Czech Republic | 3.78 | Slovak Republic | 3.88 | *Canada* | 3.78 |
| Portugal | 4.19 | Portugal | 4.09 | Cyprus | 4.05 |
| Slovak Republic | 4.21 | Czech Republic | 4.28 | Croatia | 4.17 |
| Norway | 4.29 | Norway | 4.29 | Portugal | 4.58 |
| Romania | 4.48 | Romania | 4.45 | **Turkey** | **4.89** |
| *Japan* | 4.64 | *Japan* | 4.53 | *Japan* | 5.04 |
| **Turkey** | **4.81** | **Turkey** | **4.79** | Norway | 5.04 |
| Croatia | 4.83 | Croatia | 4.85 | Romania | 5.09 |

**Table 5.**
Similarities with Respect to Germany[a]
[a] This table has been derived from OCA Similarity Matrices for Cases I, II and III. OCA Similarity Matrix for Case III is given in Table B-1 in Appendix B.

According to Table 5, in Case I, the nearest neighbor of Germany was Denmark and the furthest neighbor is Croatia. Turkey was the second furthest neighbor of Germany after Croatia. In Case II, the nearest neighbor of Germany was Austria, and the furthest neighbor was again Croatia. Similarly, Turkey was the second furthest neighbor of Germany after Croatia. In Case III, the nearest neighbor of Germany was Denmark, and the furthest was Romania. Turkey became the third furthest neighbor of Germany after Norway and Romania. Again, we would like to recall our observation that the results are highly sensitive to the filtering techniques employed, requiring that findings be evaluated cautiously.

In order to assess the relative position of the control group, we carried out principal component analysis.

| | Variability Explained (%) | | |
|---|---|---|---|
| | CASE I | CASE II | CASE III |
| 1st Principal Component | 38.13 | 35.88 | 33.56 |
| 2nd Principal Component | 63.12 | 60.87 | 58.70 |
| 3rd Principal Component | 82.05 | 80.84 | 77.59 |
| 4th Principal Component | 93.95 | 93.79 | 93.76 |
| 5th Principal Component | 100 | 100 | 100 |

**Table 6.**
Principal Component Analysis

Table 6 illustrates that the first three principal components explain almost 80 percent of the variability in data for all cases. The relative position of the control group countries could have been observed in three dimensional figures but we preferred, for the sake of clarity, to present the projection of these data in two dimensional figures, as the distances between data points in three dimensional figures are difficult to interpret.

In Figures 8 and 10 Canada and Japan can be distinguished from the European countries. Similarly, Turkey and Romania are also observed as a different group.

Table 7 shows each country's three nearest neighbors, and Turkey's distance (similarity) to each country in the sample for Case III. For Cases I and II, principal components figures, OCA similarity matrices, the three nearest neighbors of the countries and Turkey's similarity (distance) are available from the authors upon request.

The three nearest neighbors of Turkey are Hungary, Poland and Romania with quite low similarities. The higher is the OCA similarity value in Table 7, the lower is the similarity. Turkey, Romania, Canada, Japan, Norway and Cyprus exhibit low similarities to their nearest neighbors. Canada and Japan are the control group countries, and they exhibit low similarities to their nearest neighbors as expected. The other countries' low similarities might be explained by the fact that Turkey launched its EU accession negotiations in

| Austria | Slovenia | 0.77 | Belgium | 0.79 | Hungary | 1.13 | **Turkey** | 4.58 |
|---|---|---|---|---|---|---|---|---|
| Belgium | Slovenia | 0.68 | Austria | 0.79 | Hungary | 0.79 | **Turkey** | 4.22 |
| Croatia | United Kingdom | 1.45 | Netherlands | 1.76 | France | 1.82 | **Turkey** | 3.90 |
| Cyprus | Italy | 1.92 | Portugal | 1.99 | Spain | 2.07 | **Turkey** | 5.13 |
| Czech Republic | Luxembourg | 1.16 | Sweden | 1.18 | Poland | 1.28 | **Turkey** | 4.24 |
| Denmark | Italy | 1.05 | Spain | 1.34 | Czech Republic | 1.45 | **Turkey** | 4.51 |
| Finland | Slovenia | 0.29 | Belgium | 1.25 | Austria | 1.34 | **Turkey** | 4.83 |
| France | Netherlands | 0.29 | Ireland | 0.50 | United Kingdom | 1.39 | **Turkey** | 4.92 |
| Germany | Denmark | 1.70 | Austria | 2.09 | Italy | 2.19 | **Turkey** | 4.89 |
| Greece | Ireland | 1.42 | United Kingdom | 1.43 | Slovenia | 1.60 | **Turkey** | 4.54 |
| Hungary | Belgium | 0.79 | Austria | 1.13 | Slovenia | 1.18 | **Turkey** | 3.59 |
| Ireland | France | 0.50 | Netherlands | 0.68 | United Kingdom | 1.20 | **Turkey** | 4.76 |
| Italy | Spain | 0.96 | Denmark | 1.05 | Cyprus | 1.92 | **Turkey** | 4.62 |
| Luxembourg | Czech Republic | 1.16 | Netherlands | 1.37 | France | 1.45 | **Turkey** | 4.43 |
| Netherlands | France | 0.29 | Ireland | 0.68 | Portugal | 1.24 | **Turkey** | 4.93 |
| Norway | Sweden | 2.14 | Poland | 2.22 | Czech Republic | 2.42 | **Turkey** | 4.43 |
| Poland | Czech Republic | 1.28 | Sweden | 1.59 | Denmark | 2.06 | **Turkey** | 3.73 |
| Portugal | Netherlands | 1.24 | France | 1.45 | Luxembourg | 1.49 | **Turkey** | 5.30 |
| Romania | Greece | 3.33 | Ireland | 3.48 | Croatia | 3.59 | **Turkey** | 3.78 |
| Slovak Republic | Belgium | 0.89 | Hungary | 1.29 | Slovenia | 1.48 | **Turkey** | 4.53 |
| Slovenia | Belgium | 0.68 | Austria | 0.77 | Finland | 1.12 | **Turkey** | 4.39 |
| Spain | Italy | 0.96 | Denmark | 1.34 | Cyprus | 2.07 | **Turkey** | 4.58 |
| Sweden | Czech Republic | 1.18 | Poland | 1.59 | Denmark | 1.73 | **Turkey** | 4.62 |
| **Turkey** | **Romania** | **4.48** | **Romania** | **4.48** | **Romania** | **3.78** | **Turkey** | **0** |
| United Kingdom | Hungary | 3.59 | Poland | 3.73 | France | 1.39 | **Turkey** | 4.03 |
| *Canada* | *Japan* | 3.03 | Italy | 3.05 | United Kingdom | 3.19 | **Turkey** | 4.47 |
| *Japan* | United Kingdom | 2.95 | *Canada* | 3.03 | Finland | 3.22 | **Turkey** | 5.29 |

**Table 7.**
The Three Nearest Neighbors and Turkey's Similarity (distance)a, Case III
a This table has been derived from 27 x 27 OCA Similarity Matrix, Case III, Table B-1 given in Appendix B.

October 2005, Romania joined EU in January 2007, and Norway is not a European Union member, whereas Cyprus became a full member in May 2004. Therefore, this might be a sign of the endogeneity of OCA criteria. As Frankel and Rose (1996) have asserted: "Countries which join the EMU, no matter what their motivation, may satisfy OCA criteria ex



**Figure 8.**
Case III: 1st and 2nd Principal Components



**Figure 9.**
Case III: 1st and 3rd Principal Components



**Figure 10.**
Case III: 2nd and 3rd Principal Components

post even if they do not ex ante!" (Frankel and Rose 1996, p. 3).

Surprisingly, despite the geographic proximity of the UK and Ireland, Ireland's nearest neighbor is France. UK is the third nearest neighbor of Ireland with very little difference in similarity. The nearest neighbor of the UK is Ireland and France's nearest neighbor is the Netherlands.

## 4. Conclusion

Integration efforts in Europe started in the 1950s, and the OCA theory has played an important role in deepening this process by not only providing a theoretical framework for the Economic and Monetary Union, but also by being the driving force with the empirical studies carried out aiming to operationalize the theory. During the last decades, considerable progress has been experienced in the techniques of data analysis and modelling. These include pattern recognition techniques, which have been applied widely in the literature from the natural to social sciences. Cluster analysis is a part of pattern recognition technique, and similarity measures are the key elements of cluster analysis. In this study, our aim was to evaluate the relative position of Turkey with respect to European countries. Therefore, cluster analysis was left out of the scope of this paper for future work. We followed a novel approach in the application of the Hodrick-Prescott (H-P) and the Baxter-King (B-K) filters to monthly industrial production series and the real interest rates. After that, we employed Mahalanobis distance as a similarity measure to these widely used OCA criteria in the literature. We then created OCA similarity indices, computed countries' similarities with respect to Germany, their nearest neighbours and Turkey's similarity (distance) to these countries and to Germany. Afterwards, we compared the results. To our knowledge, this is the first analysis in this area that uses the filtering techniques as applied in Cases II and III. We included Canada and Japan as control group countries to assess the reliability of the results; indeed, our analysis did produce nonsensical results.

Our results show that Turkey is the second furthest neighbor country to Germany after Croatia in Cases I and II. However, Turkey is the third furthest country after Norway and Romania in Case III. The nearest neighbors of Turkey are Romania, Poland, and United Kingdom in Case I, Romania, Poland, and Belgium in Case II, and Hungary, Poland, and Romania in Case III. Therefore, this analysis shows that the
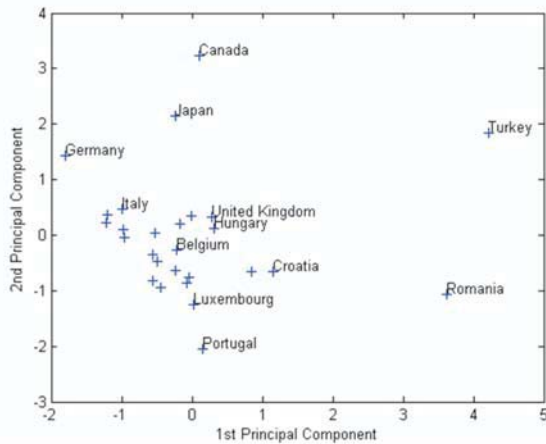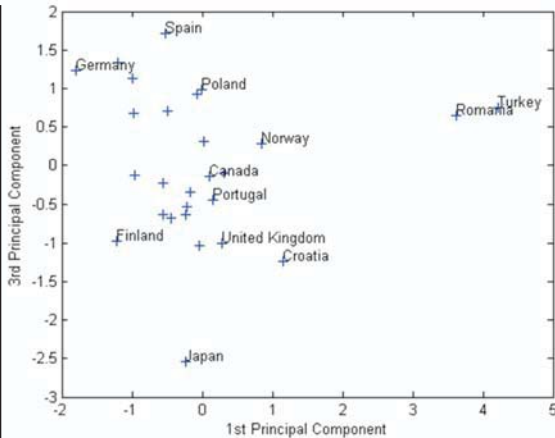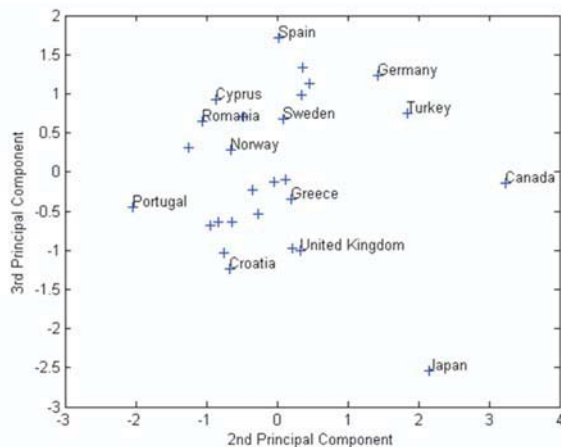
results are sensitive to the filtering technique employed.

Turkey experienced two currency crises in 1994 and 2001. For this reason, it is reasonable to expect Turkey's data to be affected adversely because of these currency crises. This was clearly seen in the results. Since Turkey started EU accession negotiations recently, it has not fully benefited from the accession stage yet. Both in the accession stage and the full membership, the probability of experiencing a currency crisis as in 1994 and 2001 is very low. Therefore, Turkey will be on its path to convergence in accordance with the OCA theory. We believe that one of the factors that play a very important role in this convergence is the young and dynamic population of Turkey, which makes the Turkish economy highly adaptive.

# 5. Appendices

**Appendix A**

**OCA Variables**

| Variables | Frequency | Data Sources | Time Interval |
|-----------|-----------|--------------|---------------|
| Industrial production series | monthly | IFS | 1996:1-2005:6 |
| Real exchange rates | monthly | IFS, TURKSTAT | 1991:1-2006:12 |
| Real interest rates | monthly | IFS, EUROSTAT, Central Bank of Luxembourg | 1997:2-2006:10(H-P Filter) 1996:2-2005:10(B-K Filter) |
| Trade data | annual | UNCTAD; Handbook of Statistics Online | 2004 |
| Inflation data | annual | WDI | 2005 |

**Table A-1.**
Frequency, Data Sources and the Time Interval of the OCA Variables

| | | | |
|---|---|---|---|
| Austria | : Government Bond Yield | Netherlands | : Government Bond Yield |
| Belgium | : Government Bond Yield | Norway | |
| Croatia | : Money Market Rate | Poland | : Money Market Rate |
| Cyprus | : Deposit Rate | Portugal | : Money Market Rate |
| Czech Republic | : Money Market Rate | Romania | : NBR Structural Credit Rate |
| Denmark | : Call Money Rate | Slovak Republic | : Average Lending Rate |
| Finland | : Government Bond Yield | Slovenia | : Money Market Rate |
| France | : Government Bond Yield | Spain | : Call Money Rate |
| Germany | : Call Money Rate | Sweden | : Call Money Rate |
| Greece | : Government Bond Yield | Turkey | : Interbank Money Market Rate |
| Hungary | : Treasury Bill Rate | United Kingdom | : Government Bond Yield |
| Ireland | : Government Bond Yield | *Canada* | : Bank Rate |
| Italy | : Money Market Rate | *Japan* | : Govenment Bond Yield |
| Luxembourg | : Government Bond Yield | | |

**Table A-2.**
Interest Rates

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| AT | Austria | DE | Germany | PL | Poland | UK | United Kingdom |
| BE | Belgium | GR | Greece | PT | Portugal | CA | *Canada* |
| HR | Croatia | HU | Hungary | RO | Romania | JP | *Japan* |
| CY | Cyprus | IE | Ireland | SK | Slovak Republic | | |
| CZ | Czech Republic | IT | Italy | SI | Slovenia | | |
| DK | Denmark | LU | Luxembourg | ES | Spain | | |
| FI | Finland | NL | Netherlands | SE | Sweden | | |
| FR | France | NO | Norway | TR | Turkey | | |

| | AT | BE | HR | CY | CZ | DK | FI | FR | DE | GR | HU | IE | IT | LU | NL | NO | PL | PT | RO | SK | SI | ES | SE | TR | UK | CA | JP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 0 | 0.79 | 2.54 | 3.83 | 2.10 | 2.12 | 1.34 | 2.22 | 2.09 | 1.96 | 1.13 | 2.27 | 2.60 | 2.41 | 2.43 | 4.25 | 2.74 | 3.38 | 4.36 | 1.50 | 0.77 | 2.76 | 2.93 | **4.58** | 1.99 | 4.32 | 4.41 |
| BE | 0.79 | 0 | 1.82 | 3.76 | 2.04 | 2.48 | 1.25 | 1.98 | 2.74 | 1.99 | 0.79 | 2.03 | 2.85 | 2.14 | 2.14 | 3.87 | 2.65 | 3.03 | 4.03 | 0.89 | 0.68 | 3.04 | 2.90 | **4.22** | 1.58 | 4.33 | 4.09 |
| HR | 2.54 | 1.82 | 0 | 3.42 | 2.42 | 3.36 | 2.08 | 1.82 | 4.17 | 2.61 | 2.04 | 1.87 | 3.36 | 1.96 | 1.76 | 3.10 | 3.02 | 2.24 | 3.59 | 1.82 | 1.96 | 3.66 | 2.98 | **3.90** | 1.45 | 4.28 | 3.42 |
| CY | 3.83 | 3.76 | 3.42 | 0 | 2.74 | 2.68 | 3.54 | 2.25 | 4.05 | 3.04 | 3.91 | 2.24 | 1.92 | 2.11 | 2.17 | 3.67 | 3.69 | 1.99 | 3.72 | 4.37 | 3.18 | 2.07 | 2.61 | **5.13** | 3.08 | 3.86 | 4.69 |
| CZ | 2.10 | 2.04 | 2.42 | 2.74 | 0 | 1.45 | 2.20 | 2.12 | 2.84 | 2.95 | 1.93 | 2.39 | 2.00 | 1.16 | 2.12 | 2.42 | 1.28 | 2.60 | 4.33 | 2.50 | 1.75 | 2.30 | 1.18 | **4.24** | 2.48 | 4.23 | 4.37 |
| DK | 2.12 | 2.48 | 3.36 | 2.68 | 1.45 | 0 | 2.43 | 2.50 | 1.70 | 2.62 | 2.37 | 2.60 | 1.05 | 2.10 | 2.61 | 3.61 | 2.06 | 3.31 | 4.47 | 3.24 | 1.99 | 1.34 | 1.73 | **4.51** | 2.74 | 3.65 | 4.65 |
| FI | 1.34 | 1.25 | 2.08 | 3.54 | 2.20 | 2.43 | 0 | 1.61 | 2.72 | 1.98 | 1.80 | 1.76 | 2.58 | 2.32 | 1.78 | 3.88 | 2.90 | 2.95 | 4.69 | 1.76 | 1.12 | 3.12 | 2.58 | **4.83** | 1.36 | 3.74 | 3.22 |
| FR | 2.22 | 1.98 | 1.82 | 2.25 | 2.12 | 2.50 | 1.61 | 0 | 3.42 | 1.80 | 2.48 | 0.50 | 2.20 | 1.45 | 0.29 | 3.58 | 3.23 | 1.45 | 3.81 | 2.45 | 1.50 | 2.60 | 2.46 | **4.92** | 1.39 | 3.85 | 3.60 |
| DE | 2.09 | 2.74 | 4.17 | 4.05 | 2.84 | 1.70 | 2.72 | 3.42 | 0 | 2.69 | 2.63 | 3.39 | 2.19 | 3.49 | 3.63 | 5.04 | 3.13 | 4.58 | 5.09 | 3.54 | 2.44 | 2.30 | 3.20 | **4.89** | 3.19 | 3.76 | 5.04 |
| GR | 1.96 | 1.99 | 2.61 | 3.04 | 2.95 | 2.62 | 1.98 | 1.80 | 2.69 | 0 | 2.34 | 1.42 | 2.27 | 2.66 | 2.05 | 4.83 | 3.80 | 2.97 | 3.33 | 2.74 | 1.60 | 2.37 | 3.48 | **4.54** | 1.43 | 3.41 | 4.06 |
| HU | 1.13 | 0.79 | 2.04 | 3.91 | 1.93 | 2.37 | 1.80 | 2.48 | 2.63 | 2.34 | 0 | 2.50 | 2.87 | 2.28 | 2.61 | 3.68 | 2.21 | 3.40 | 3.93 | 1.29 | 1.18 | 2.99 | 2.84 | **3.59** | 1.91 | 4.27 | 4.29 |
| IE | 2.27 | 2.03 | 1.87 | 2.24 | 2.39 | 2.60 | 1.76 | 0.50 | 3.39 | 1.42 | 2.50 | 0 | 2.19 | 1.72 | 0.68 | 3.87 | 3.44 | 1.65 | 3.48 | 2.58 | 1.57 | 2.52 | 2.76 | **4.76** | 1.20 | 3.65 | 3.61 |
| IT | 2.60 | 2.85 | 3.36 | 1.92 | 2.00 | 1.05 | 2.58 | 2.20 | 2.19 | 2.27 | 2.87 | 2.19 | 0 | 2.17 | 2.30 | 3.84 | 2.77 | 2.97 | 4.14 | 3.66 | 2.25 | 0.96 | 1.99 | **4.62** | 2.53 | 3.05 | 4.33 |
| LU | 2.41 | 2.14 | 1.96 | 2.11 | 1.16 | 2.10 | 2.32 | 1.45 | 3.49 | 2.66 | 2.28 | 1.72 | 2.17 | 0 | 1.37 | 2.59 | 2.30 | 1.49 | 3.67 | 2.52 | 1.76 | 2.34 | 1.81 | **4.43** | 2.21 | 4.38 | 4.36 |
| NL | 2.43 | 2.14 | 1.76 | 2.17 | 2.12 | 2.61 | 1.78 | 0.29 | 3.63 | 2.05 | 2.61 | 0.68 | 2.30 | 1.37 | 0 | 3.39 | 3.22 | 1.24 | 3.85 | 2.56 | 1.71 | 2.73 | 2.40 | **4.93** | 1.52 | 3.91 | 3.55 |
| NO | 4.25 | 3.87 | 3.10 | 3.67 | 2.42 | 3.61 | 3.88 | 3.58 | 5.04 | 4.83 | 3.68 | 3.87 | 3.84 | 2.59 | 3.39 | 0 | 2.22 | 3.32 | 5.28 | 3.95 | 3.80 | 4.24 | 2.14 | **4.43** | 3.83 | 5.05 | 4.48 |
| PL | 2.74 | 2.65 | 3.02 | 3.69 | 1.28 | 2.06 | 2.90 | 3.23 | 3.13 | 3.80 | 2.21 | 3.44 | 2.77 | 2.30 | 3.22 | 2.22 | 0 | 3.71 | 4.91 | 2.99 | 2.61 | 3.06 | 1.59 | **3.73** | 3.16 | 4.37 | 4.56 |
| PT | 3.38 | 3.03 | 2.24 | 1.99 | 2.60 | 3.31 | 2.95 | 1.45 | 4.58 | 2.97 | 3.40 | 1.65 | 2.97 | 1.49 | 1.24 | 3.32 | 3.71 | 0 | 3.70 | 3.27 | 2.65 | 3.17 | 2.88 | **5.30** | 2.57 | 4.77 | 4.41 |
| RO | 4.36 | 4.03 | 3.59 | 3.72 | 4.33 | 4.47 | 4.69 | 3.81 | 5.09 | 3.33 | 3.93 | 3.48 | 4.14 | 3.67 | 3.85 | 5.28 | 4.91 | 3.70 | 0 | 4.41 | 3.88 | 3.67 | 5.00 | **3.78** | 3.62 | 5.12 | 6.01 |
| SK | 1.50 | 0.89 | 1.82 | 4.37 | 2.50 | 3.24 | 1.76 | 2.45 | 3.54 | 2.74 | 1.29 | 2.58 | 3.66 | 2.52 | 2.56 | 3.95 | 2.99 | 3.27 | 4.41 | 0 | 1.48 | 3.85 | 3.38 | **4.53** | 2.13 | 5.05 | 4.34 |
| SI | 0.77 | 0.68 | 1.96 | 3.18 | 1.75 | 1.99 | 1.12 | 1.50 | 2.44 | 1.60 | 1.18 | 1.57 | 2.25 | 1.76 | 1.71 | 3.80 | 2.61 | 2.65 | 3.88 | 1.48 | 0 | 2.46 | 2.56 | **4.39** | 1.44 | 4.05 | 4.07 |
| ES | 2.76 | 3.04 | 3.66 | 2.07 | 2.30 | 1.34 | 3.12 | 2.60 | 2.30 | 2.37 | 2.99 | 2.52 | 0.96 | 2.34 | 2.73 | 4.24 | 3.06 | 3.17 | 3.67 | 3.85 | 2.46 | 0 | 2.62 | **4.58** | 2.95 | 3.67 | 5.14 |
| SE | 2.93 | 2.90 | 2.98 | 2.61 | 1.18 | 1.73 | 2.58 | 2.46 | 3.20 | 3.48 | 2.84 | 2.76 | 1.99 | 1.81 | 2.40 | 2.14 | 1.59 | 2.88 | 5.00 | 3.38 | 2.56 | 2.62 | 0 | **4.62** | 2.87 | 3.82 | 3.95 |
| TR | **4.58** | **4.22** | **3.90** | **5.13** | **4.24** | **4.51** | **4.83** | **4.92** | **4.89** | **4.54** | **3.59** | **4.76** | **4.62** | **4.43** | **4.93** | **4.43** | **3.73** | **5.30** | **3.78** | **4.53** | **4.39** | **4.58** | **4.62** | 0 | **4.03** | **4.47** | **5.29** |
| UK | 1.99 | 1.58 | 1.45 | 3.08 | 2.48 | 2.74 | 1.36 | 1.39 | 3.19 | 1.43 | 1.91 | 1.20 | 2.53 | 2.21 | 1.52 | 3.83 | 3.16 | 2.57 | 3.62 | 2.13 | 1.44 | 2.95 | 2.87 | **4.03** | 0 | 3.19 | 2.95 |
| CA | 4.32 | 4.33 | 4.28 | 3.86 | 4.23 | 3.65 | 3.74 | 3.85 | 3.78 | 3.41 | 4.27 | 3.65 | 3.05 | 4.38 | 3.91 | 5.05 | 4.37 | 4.77 | 5.12 | 5.05 | 4.05 | 3.67 | 3.82 | **4.47** | 3.19 | 0 | 3.03 |
| JP | 4.41 | 4.09 | 3.42 | 4.69 | 4.37 | 4.65 | 3.22 | 3.60 | 5.04 | 4.06 | 4.29 | 3.61 | 4.33 | 4.36 | 3.55 | 4.48 | 4.56 | 4.41 | 6.01 | 4.34 | 4.07 | 5.14 | 3.95 | **5.29** | 2.95 | 3.03 | 0 |

**Table B-1.**
OCA Similarity Matrix, Case III[a]
[a] This matrix has been calculated by Mahalanobis distance function employed in Matlab.

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# Measuring Market Risk for Commercial Banks in the Volatile Environment of an Emerging Market Economy

Andraz Grum

## Abstract

Slovenian commercial banks have two possibilities for calculating capital charges for the market risks to which they are exposed. Due to the capital decree legislated by the Bank of Slovenia, they can use standardized methodology or apply an internal model. An internal model can be based on different risk measures, with each risk measure having its strengths and weaknesses. Consequently, the volume of risk calculated using a specific risk measure will vary among risk measures. Basel II regulation assumes VaR methodology for capital requirements calculations for the market risks to which commercial banks are exposed. There are two commonly used methods for VaR calculation – historical simulation and the variance-covariance method. Each has its strengths and weaknesses. The goal of this paper is to present the methodology of volatility and time weighted historical simulation as an internal model for market risk measurement in Slovenian commercial banks. The methodology is based on historical simulation and tries to remove the disadvantages of this method with GJR GARCH volatility modelling and the time weighting of returns.

Key words: Commercial banks, Value at risk, Risk measurement, Internal model,

JEL : C22, E58, G21

## 1. Introduction

In this paper we regard commercial banks as financial investors. Slovenian commercial banks have two possibilities for calculating capital charges for the market risk to which they are exposed. Due to the capital decree legislated by the Bank of Slovenia, Slovenian commercial banks can apply internal models for capital requirements calculation for currency risk and selected market risks (general position risk in line with debt and equity instruments, price change risk for commodities) as an alternative or in combination with standardized methodology.

The standardized approach has to be used by banks in case they do not have an internal model; it is based on a capital decree legislated by the Bank of Slovenia. Alternatively, commercial banks can apply an internal model for risk management purposes and can use several risk measures. Each risk measure has its strengths and weaknesses. Consequently, the volume of risk calculated using a specific risk measure will vary.

The risk management process in a commercial bank is based on a calculated value of risk measure. Consequently, it is very important for a commercial bank to fully understand the interpretation of a selected risk measure. If the volume of risk varies using different risk measures, the decisions upon changes in positions in a portfolio will be different. One of the most frequently used measures of market risk is the VaR (value at risk) risk measure[1]. Basel II regulation assumes VaR methodology for capital requirements

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[1]    More about VaR can be found in Jorion (2001).

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calculations for the market risk commercial banks to which are exposed. There are two commonly used methods for VaR calculation – historical simulation and the variance-co-variance method. Each has its strengths and weaknesses. The goal of this paper is to present the methodology of volatility and time weighted historical simulation as an internal model for market risk measurement in a commercial bank. The methodology is based on historical simulation, and tries to abolish the disadvantages of this method with GARCH volatility modelling and the time weighting of returns.

## 2. Methodology

### 2.1. Distribution of Returns

The historical simulation methodology of VaR calculation is commonly used because of its independence to risk factor distribution. If a commercial bank wants to calculate the general position risk for securities in its portfolio, the results of historical simulation will not depend on portfolio return distribution. As Andersen et al. (2000) point out, the asset return distribution is usually not normal, but rather leptokurtic – it has fat tails (excess kurtosis) and is asymmetric (skewed). This is bad news for the variance-covariance method for VaR calculation, which is based on the assumption of normal asset returns distribution and consequently underestimates the possibility of extreme returns.

One of the reasons for the distribution to be leptokurtic is that asset returns volatility tends to cluster in time (Poon and Granger (2003)). As Campbell, Lo and MacKinlay (1997) point out, the distribution of volatility of asset returns in time does not follow the independently and identically distributed normal (IDD) model as assumed by efficient capital market theory. If asset returns distribution conditional on volatility is normal, then unconditional distribution will have fatter tails as normal distribution.

### 2.2. Historical Simulation VaR Calculation and Disadvantages

The capital charges for market risk are usually calculated on the basis of no less than 250 daily returns of a commercial bank securities portfolio. The historical simulation VaR calculation for a portfolio of securities is based on the empirical distribution of historical portfolio returns (in n = 250

days), where the weights of specific security (i = 1, …, N) in a portfolio are assumed to be constant over time:

$$r_t = \sum_{i=1}^{N} w_i * r_{i,t}$$

$r_t$ – historically simulated portfolio return at time $t$

$r_{i,t}$ – return of security $i$ at time t

$w_i$ – weight of security $i$ in portfolio

Calculated historically simulated returns can be represented by a histogram, in which the VaR measure for a given significance level can be obtained. If we are looking for the VaR measure at a 99% significance level, then the third (1% of 250 is 2.5, rounded up to 3) biggest negative return is the percentage VaR. The absolute value of VaR is obtained if the percentage VaR is multiplied by the current portfolio value.

The historical simulation method has its disadvantages. The main methodological disadvantage is the fact that returns are not time weighted; rather they all have been appointed the same weight (1/number of observations). The weighting scheme indirectly assumes the risk factors and consequently historical returns to be IDD over time. Such an assumption is problematic, especially in emerging markets which are assumed to be inefficient and where volatility clustering and autocorrelation of returns are very common. Another disadvantage comes from the fact that the calculated VaR measure depends on the actual returns observed in the chosen past time period, from which several problems emerge:

- If volatility in period chosen is low/high compared to current volatility, the calculated VaR measure will underestimate/overestimate the actual current market risk.

- Historical simulation is not an adequate market risk measure if extreme market volatility movements or shocks are observed in the period chosen because it reacts slowly to such movements. Extreme negative returns that are unlikely to reoccur can unrealistically overestimate the VaR measure.

- Extreme negative returns that occurred in the past usually result in a ghost effect – they continuously affect the calculated VaR measure for a long period of time before suddenly disappearing as they fall out of the chosen period.

- VaR calculated with historical simulation is limited by the biggest negative return in the chosen period. Bigger negative returns can not be extrapolated, even if they are possible at present.

The problems stated above cannot be solved by classical historical simulation. A combination of historical simulation and volatility modeling, namely volatility and time weighted historical simulation, has proven to be a good solution. This method is especially appropriate for emerging market economies and can be used as an internal model for market risk assessment at a commercial bank.

## 2.3. Volatility and Time Weighted Historical Simulation

If we assume that unconditional returns are not IDD, then it can be assumed that the data on returns from the more recent past are more representative of future risk. As a possible solution to the problem, Boudoukh, Richardson and Whitelaw (1998) suggested a generalized historical simulation method known as the BRW model. The BRW model assigns different weights to returns, depending on the time of their origin. The last historical return rt has an assigned weight $w_1$, the return before that $r_{t-1}$ has an assigned weight $w_2$, where $w2 = w1*\lambda$ and so on. $\lambda$ represents the exponential decay factor with values on the interval between 0 and 1.

The largest weights are assigned to the returns from the more recent past. The value of the weights decreases in time according to an exponential decay factor, and the sum of all weights is equal to one. When the weights are assigned to each return, VaR is calculated on the basis of the empirical distribution of weighted returns from the cumulative distribution function. The BRW model is commonly used and was accepted by RiskMetrics (RiskMetrics Group, 1999). RiskMetrics uses a decay factor $\lambda = 0.94$ for daily data and $\lambda = 0.97$ for monthly data, though practical experiences have shown that the optimal value of the decay factor varies depending on the specifics of the financial market.

The problem of assigning different weights to returns on the basis of their occurrence can be solved by another method. Hull and White (1998) suggested returns be weighted by volatility. The idea behind this theory is to adapt past returns to the change in volatility that occurred most recently. The prediction of VaR on day *(T)* depends on the latest historical return ($r_{i,t}$) and the GARCH prediction of volatility

($\sigma_{t,i}$) for the period at the end of day (t-1). The predicted volatility ($\sigma_{T,i}$) at time (T) serves as a multiplier, with which historical returns (ri,t) at time (t) weighted for volatility ($\sigma_{t,i}$) at time (t) are multiplied:

$$r^*_{i,t} = \sigma_{T,i} * \frac{r_{i,t}}{\sigma_{t,i}}$$

$r^*_{i,t}$ – volatility weighted return

The method assures the multiplication of past negative returns - they increase or decrease depending on the current market volatility. The volatility weighted returns are then represented by a histogram, from which the VaR measure for a given significance level can be obtained.

The GARCH (Generalized Autoregressive Conditional Heteroscedasticity) model (Bollerslev, 1986 and Taylor, 1986) will be used for future volatility prediction, as it was specially designed to model volatility clustering observed in financial markets. In the GARCH model, conditional variance of returns changes in time and is a function of past variance and the square of past returns. The model assumes future variance can be predicted from past returns and volatility. If we take into consideration only one past period, then volatility is predicted by the GARCH(1, 1) model, which is the most commonly used (Poon and Granger, 2003):

$$\sigma_t^2 = \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1|t-2}^2 \quad ; \quad \alpha + \beta \leq 1 \qquad (3)$$

$\alpha, \beta, \omega$ - constants

$\sigma_t^2$ - period $t$ variance

$\omega$ - average volatility

$\varepsilon_t$ – error (unexpected return) at time $t$

$\sigma_{t-1|t-2}^2$ - the GARCH model prediction of variance for time ($t$-1) obtained on the basis of time ($t$-2) information

The simple GARCH (1, 1) model captures most of the variability in the return series. Small lags are common in empirical applications. The model is adequate for modeling volatilities even over long sample periods (Bollerslev, Chou, Kroner, 1992).

For commercial banks, risk is represented by negative rather than positive returns. The model should be able to treat negative returns asymmetrically to positive returns. For that reason, the asymmetric GARCH (AGARCH) model

or GJR (Glosten, Jagannathan, Runkle, 1993) GARCH model can be used. GJR GARCH models are sometimes known as Threshold-GARCH or TGARCH models [2]. They are similar to GARCH models, but include a term to capture the leverage effect, or negative correlation, between asset returns and volatility. For certain asset classes, most notably equities, but excluding foreign exchange, volatility tends to rise in response to lower than expected returns, and to fall in response to higher than expected returns. Such an effect suggests models that include an asymmetric response to positive and negative surprises. GJR GARCH (1, 1) model can be represented as:

$$\sigma_t^2 = \omega + \alpha \varepsilon_{t-1}^2 + \beta \sigma_{t-1|t-2}^2 + \gamma S_{t-1} \varepsilon_{t-1}^2$$

$$S_{t-1} = 1 \text{ if } \varepsilon_{t-1} < 0 \text{ and } S_{t-1} = 0 \text{ if } \varepsilon_{t-1} \geq 0$$

$$\alpha + \beta + \frac{1}{2}\gamma < 1$$

$\gamma$ - constant which introduces asymmetry to the model

$\alpha, \beta, \omega, \gamma$ - constants, whose values vary among specific financial markets

We will use the simple constant mean model, where the expected daily return is set to zero:

$$r_t = \mu + \varepsilon_t$$

$r_t$ – daily return

$\mu$ – average daily return

For emerging markets, or for markets with evident trends, different values can be used. This model is often sufficient to describe the conditional mean in a financial return series. Most financial return series do not require the comprehensiveness that an ARMA (Auto Regressive Moving Average) model provides.

The volatility and time weighted historical simulation (VTWHS) model represents the combination of Hull-White model and BRW model. The VTWHS model starts with Hull-White volatility weighted returns, but uses a modified AGARCH or GJR GARCH model rather than the GARCH model. With the GARCH prediction of volatility, the Hull-White model solves most problems of classical historical simulation; two problems, however, remain:

- The GARCH volatility prediction assigns greater importance to historical volatility predictions than to the current return. If volatility on the market is growing, then the VaR measure will also grow and will be slow to fall when volatility falls.

- If extreme negative returns are observed in the period chosen the ghost effect distorts the true level of risk.

The remaining problems can be solved by a procedure from the BRW model – by using an exponential weighting scheme. For that reason, however, the value of the decay factor should be readjusted. If exponential weighting is used on modified data (as in the case of volatility weighted returns) then the importance of the decay factor should be much lower, while the fore value of the decay factor should be close to one. If the importance of the decay factor is high, then the multiplication of current volatility with historical returns would no longer be sensible, as its importance would quickly fall. The suggested level for the decay factor is above $\lambda = 0.99$. To lower the importance of the decay factor, we use a factor of 0.997 in the estimation.

## 3. Data

We tested the adequacy of the methodology of volatility and time weighted historical simulation as an internal model for market risk measurement in a commercial bank. It was assumed that a Slovenian commercial bank invests their trading book positions mainly in stocks included in the main Slovenian stock exchange index SBI20. The methodology was tested on the 500 daily returns of SBI20 stock exchange index in the time period between 19th June 2005 and 14th June 2007.

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[2]    Many references mention the GJR model as a TGARCH, or Threshold GARCH, model. However, others make a very clear distinction between GJR and TGARCH models:
[a] GJR model is a recursive equation for the conditional variance, whereas a TGARCH model is the identical recursive equation for the conditional standard deviation (see, for example, Hamilton (1994, p. 669), Bollerslev, et. al. (1994, p. 2970)).

# 4. Results

The parameters of GARCH (1, 1) and GJR GARCH (1, 1) model were estimated using MATLAB 7 software.

| Parameter | Value | Standard Error | T-Statistic |
|---|---|---|---|
| μ | 0.083768 | 0.022032 | 38.022 |
| ω | 0.061416 | 0.011678 | 52.591 |
| α | 0.471680 | 0.061296 | 76.951 |
| β | 0.318740 | 0.059722 | 53.370 |

**Table 1.**
Estimated Parameters of GARCH (1, 1) model
Source: Own calculations.

| Parameter | Value | Standard Error | T-Statistic |
|---|---|---|---|
| μ | 0.08382 | 0.022138 | 37.864 |
| ω | 0.06159 | 0.061427 | 52.481 |
| α | 0.47055 | 0.061427 | 76.604 |
| β | 0.31856 | 0.082743 | 38.501 |
| γ | 0.00143 | 0.090180 | 0.0158 |

**Table 2.**
Estimated Parameters of GJR GARCH (1, 1) model
Source: Own calculations.

| Date | SB 120 matching portfolio value | Daily return (%) | Daily return squared | Recursive variance | Recursive standard deviation | Normalized returns | Volatility weighted returns | Time weightening (λ=0.997) |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 19.6.03 | 3,129.81 | -0.184017 | 0.033862253 | 0.033862253 | 0.184016992 | -1.000000 | -0.42180203 | -0.420536624 |
| 20.6.03 | 3,124.70 | -0.163269 | 0.026656667 | 0.100479215 | 0.316984566 | -0.515068 | -0.217256848 | -0.216605078 |
| 23.6.03 | 3,112.07 | -0.404199 | 0.163376672 | 0.128407109 | 0.358339377 | -1.127978 | -0.475783256 | -0.474355907 |
| | | | | | | | | |
| 9.6.05 | 4,570.60 | 0.56215 | 0.316012658 | 0.309721555 | 0.556526329 | 1.01010501 | 0.426064342 | 0.424786149 |
| 10.6.05 | 4,585.22 | 0.3198705 | 0.102317122 | 0.280214665 | 0.529353063 | 0.60426679 | 0.254880959 | 0.254116316 |
| 13.6.05 | 4,599.64 | 0.3144887 | 0.098903159 | 0.211194517 | 0.459559047 | 0.68432714 | 0.288650576 | 0.287784624 |
| 14.6.05 | 4,600.06 | 0.0091311 | 8.33779E-05 | 0.177916952 | 0.42180203 | 0.02164795 | 0.009131149 | 0.009103756 |

**Table 3.**
Example of GJR GARCH (1, 1) volatility and time weighted historical simulation VaR calculation
Source: Own calculations.

Column 2 in Table 3 represents daily index values, from which daily returns (column 3) can be calculated. In Column 4 daily returns are squared, as they are needed as input in the GJR GARCH (1, 1) model recursive variance calculations (column 5). Recursive variance is calculated with equation 4 and on the basis of estimated parameter values from Table 2. The square root of variance – namely recursive standard deviation is presented in Column 6. The daily return divided by recursive standard deviation gives the normalized return.

For every day in which the simulation was performed, in Column 8 the recursive standard deviation calculated for that day was multiplied with all normalized returns from the sample of the chosen period. The multiplication resulted in volatility weighted returns (column 8). To estimate VaR for 15th June 2005, the first day after the start of the chosen period, then normalized returns should be multiplied with recursive standard deviation estimated on 14th June 2005.

To achieve the best possible sensitivity to market changes, volatility weighted returns were exponentially time weighted with a decay factor of 0.997. The VaR at the chosen significance level for the next day can be obtained if volatility and time weighted returns (column 9) are represented with a histogram.

| Method | VaR% (99% significance) | VaR% (95% significance) |
|---|---|---|
| Simple historical simulation | -1.5379 | -0.8371 |
| Volatility and time weighted historical simulation with GARCH (1, 1) model and λ=0.997 | -1.0693 | -0.6778 |
| Volatility and time weighted historical simulation with GJR GARCH (1, 1) model and λ=0.997 | -1.0679 | -0.6772 |

**Table 4.**
Percentage VaR values for 15th June 2005 for portfolio matching index SBI20 calculated on the basis of different methods
Source: Own calculations.

From Table 4 it can be seen that volatility and time weighted historical VaR calculation was much smaller (regardless of the chosen volatility model) than VaR calculated with the simple historical method. The reason for this was small volatility represented by the recursive standard deviation, which was at the time of the estimation about 20% below the average volatility within the chosen period. Because simple historical simulation was slow to react to market volatility changes, the commercial bank using such a method would overestimate the market risk, the resulting capital charges would be too high, and capital would be inefficiently spent.

# 5. Conclusion

The historical simulation method of VaR calculations has disadvantages which are especially problematic in the highly volatile environment common to emerging markets. To successfully measure market risk more sophisticated methods should be used. In this paper, the methodology of volatility and time weighted historical simulation as an internal model for market risk measurement at a commercial bank was presented. The methodology was based on historical simulation and tried to remove the disadvantages of the method with GARCH volatility modelling and the time weighting of returns with the decay factor. The method fairly estimates the current market risk to which a commercial bank is exposed, taking into consideration current market volatility. If market risk is fairly estimated, inefficient capital charges can be eliminated. If this methodology were used daily, it would prevent commercial banks from back testing, one of the preconditions set by the monetary authority for the acceptance of an internal model.

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