UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

DIPLOMA THESIS

THE MAJOR NORTHERN ADRIATIC PORTS AS A NEW GATEWAY TO CENTRAL EUROPE

Ljubljana, December 2008 JANEZ BENEDIK

STATEMENT

Janez Benedik, a student of Faculty of Economics, I state that I am the author of this diploma thesis, whose mentor was prof. dr. Andrej Kumar. On the basis of Item 1 of the Article 21 of the Copyright and Related Rights Act, I give my consent for the web publication of this diploma thesis on the official faculty's web pages.

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INTRODUCTION

In the last couple of years, the definition of the term “port” has changed significantly. The leading factors that have contributed to this change can be recognized as a technological development of maritime transport, the importance of maritime transport to national economies as well as to the European economy, and the increasing importance of a combined transport. Initially ports were synonymous with natural ports (harbours). They encompassed the area of the sea where depth and morphology of the coastline provided adequate shelter for ships.

The role of the port industries in the transport chains, as well as the various forms of contemporary port activity, required that ports are defined as (Chlomoudis & Pallis, 2002, pp. 3-4): *“Terrestrial and seaside areas consisting of specific constructions and equipment so as to enable the deployment of commercial activities with the main functions being ships’ reception, loading, transloading, unloading, warehousing, reception and delivery of goods via inland transport modes and the boarding and transportation of passengers. Within the confines of those areas, several enterprises operate and utilise the available port infrastructure and superstructure, as well as conventional road and railway infrastructure.”*

The diploma paper investigates the gravity, development and potential of major northern Adriatic ports – the port of Trieste, Koper and Rijeka - as a significant gateway to Central Europe. These ports enjoy their primal precedence of propitious geographical position. However, all three ports can not compete severally with the major ports in the North and Baltic Sea due to their capacity and smallness. Therefore, a tendency towards their joint approach seems to be absolutely necessary in order to improve their full potential and to be able to serve their hinterland in Central Europe to a sufficient competitive extend. Another serious problem represents an inadequate transport infrastructure link of those ports with their hinterland.

The diploma paper is divided into four main parts. In the first one, a brief development of transport policy is presented. Additionally, I introduce a continual EU’s aspiration for Common Transport Policy and expose the main tendencies of EU’s port policy. Another aspect of this part is a short introduction of the shifts in European economic power centres. They seem to be spreading and shifting towards the east, what might have a positive effect on the gravity of northern Adriatic ports.

Further, in the second part I made a detailed analysis of ports’ maritime transport. I begin with the geographical position and natural characteristics of northern Adriatic ports and I follow with their descriptive facts, quality and services they offer. Later on, I made a maritime transport survey according to the type of cargo and examine container trade. In this part I applied the linear trend model in order to forecast future traffic flows and the moving

averages model in order to have an evident review of traffic development. This part closes with the future aspects of northern Adriatic ports, which are of a principal importance for further maritime traffic growth.

In a rather short third part I present some accomplished ways of northern Adriatic ports' collaboration and point out some experts' opinions about this issue.

Since all ports are strongly dependant on their transport infrastructure links with their hinterland, I concentrate on this subject in the fourth part. As the analysis if a single Adriatic port falls beyond the scope of this diploma paper, the fourth part exemplarily focuses on Luka Koper as the only Slovenian freight transport port. The most important transport connections with Central Europe are so called Pan-European corridor V and X. Therefore, I investigate the current transport situation, transport related problems and the transport infrastructure funding. Later on in this section, I conduct an analysis of a transport sector contribution to Slovenian economy. By means of the multiple regression analysis I investigate which transport drivers have the strongest impact on a development of the Slovenian economy. Moreover, I assume that the further development of the maritime transport would lead to the national economic growth.

1 TRANSPORT POLICY AND SHIFTS IN POWER CENTRES

1.1 Transport Policy

Nowadays transport represents a key sector in modern economies. We are witnessing an increasing demand for a greater mobility and on the other hand, a public opinion, which in becoming anxiously intolerant of chronic delays and inferior quality of transport services. However, a higher demand can not satisfy public requirements solely by the establishment of a new infrastructure and opening up the markets. Therefore, modern transport systems tend to undertake improvements and are able to meet demands for both, the extended infrastructure and the sustainable development. There must be an existence of synergies between economic, social and environmental viewpoint.

1.1.1 Transport policy of European Union

In 2001 the European Commission adopted the Common Transport Policy (CTP), which has got the aim to introduce common measures and rules applicable to international transport. The CTP was expected to contribute to European economic integration and to enhance economic development. All the treaties for the CTP are adopted by Member States collectively. Beside the establishment of common legal foundations among Member States, the CTP also imposes

conditions under which non-resident carriers may operate their services in a Member State. The CTP contributes to the reinforcement of the four principal freedoms stipulated by the Single European Market (SEM): the free movement of goods, persons, and capital, and the freedom of establishment (McDonald & Dearden, 2005, pp. 267-272; The European Commission's new Common Transport Policy, 2008).

Provisions on the principles of a CTP are contained in the Treaty of Rome (Articles 3 and 74-84), which was signed in 1957. Since this beginning, transport policy has been an uneasy amalgam of two approaches (McDonald et al., 2005, p. 269):

- The establishment of non-discriminatory competitive conditions in the European transport market.
- The adoption of an interventions and regulatory approach, based on the view that efficient transport is essential for the functioning of modern economies and for the process of economic integration in EU.

Since the Treaty of Rome, the process of CTP development has been slow. The Commission attempted to stimulate development of the CTP by the publication of a policy statement and Action Programme in 1973. This was mainly a restatement of the 1961 Memorandum, and its approach was reflected in the four priority areas selected in the Action Plan (McDonald et al., 2005, pp. 269-272):

- The creation of a Community network transport plan.
- The development of criteria for the allocation of infrastructure costs between modes of transport.
- Addressing the role of railways in the Community's transport plan.
- Planning a development of the inland transport market.

However, the first step towards the CTP improvement happened in 1985, when the European Parliament successfully brought the Council of Ministers in the European Court of Justice (ECJ) for *"failing to ensure freedom to provide services of international transport and to lay down the conditions under which non-resident carriers may operate transport services in a member state"* (McDonald et al., 2005, p. 271).

The most recent statement of Community policy, covering the period up to 2010, is the 2001 White Paper (COM(2001)370). The measures advocated in this White Paper are merely the first stages of a longer-term strategy. These are intended to shift traffic from road and air, to rail and the inland waterways and to public transport. It will also seek to foster efficiency gains through creating a competitive, integrated, internal transport market, where pricing accurately reflects the full social costs that are being imposed (McDonald et al, 2005, pp. 267-269). Moreover, the White Paper contains guidelines for the development of the trans-

European transport network (TEN-T), which comprehend road, railways, inland waterways, airports, seaports, inland ports and traffic management systems that serve the whole Europe, carry the bulk of the long distance traffic and bring the geographical and economic areas of the EU closer together.

1.1.2 The European Union Port Policy

The maritime transport has been absent from the CTP for sixteen years since the Treaty of Rome was signed in 1957. However, the first EU enlargement in 1973 had an enormous impact on the content of the CTP. It increased the relative importance of sea transport and the new EU of nine Member States became more active in this sector. Issues regarding the maritime transportation of persons and goods began to be discussed, at the European level, as being an integral part of the CTP. The second (accession of Greece, 1981) and the third (accession of Spain and Portugal, 1986) enlargement furthered the importance of the maritime transport to the EU economy (Chlomoudis & Pallis, 2002, pp. 42-55).

Thus, from 1974 so called "non-intervention" policy in port production and industry was in force. In the end of 1980s, the Commission acknowledged the existence of issues that ought to interest the EU since ports comprised a vital link between maritime and inland transport modes. For that reason the Commission adopted the view that issues regarding maritime and inland transport were being examined.

The next important period within evolutionary framework of the CTP, concerning the port sector started in 1991 and it was lasting until 2000. This period is characterised by the resumption of initiatives and the formation of proposals within a steady course "towards a European Port Policy". A result of this process is the creation of a new freer market with minimal restrictions and quotas. The most important policies of multiple levels and issues directly and indirectly related to the port industry and production that appeared between 1991 and 2000 refer to the following (Chlomoudis & Pallis, 2002, pp. 42-55):

- Transport infrastructure, financing and charging methods.
- Combined transport.
- Trans-European Transport Networks.
- Infrastructure and telematics[1] for administration systems and pilotage[2].
- Sustainable mobility and transport.
- Safety issues.

[1] The term *telematics* is the integrated use of telecommunications and informatics. This term is also known as ICT (Information and Communications Technology). Found on 1. October 2008 on a web page http://en.wikipedia.org/wiki/Telematics.

[2] *Pilotage* is the use of fixed visual references on the ground or sea by means of sight or radar to guide oneself to a destination, sometimes with the help of a map or nautical charts. Found on 1. October 2008 on a web page http://en.wikipedia.org/wiki/Pilotage.

- Systematic statistical recording of transport activities.

European seaports would like to see the development of a coherent EU policy framework which focuses on three key areas (A practical guide for EU policy makers; ESPO, 2004, p. 3):

1. Facilitating development of adequate port capacity, maritime access and hinterland connections to allow ports to fulfil their role as gateways for Europe's external and internal trade – through:
   - clarifying State aid rules for public funding of port infrastructure, services of general interest in ports, as well as of maritime access and hinterland infrastructure;
   - focusing support under TEN-T on missing or inadequate infrastructure links, especially those connecting seaports to their fore- and hinterlands;
   - stimulating an open debate about the impact of nature conservation rules on vital port and port-related development projects.

2. Fostering the provision of competitive and efficient services in ports and within the transport chain – through:
   - guaranteeing that port charges are a matter of commercial and financial autonomy of each individual port;
   - ensuring that services in the transport chain are equally competitive, market oriented, efficient, safe, secure and environmentally-sustainable as those provided in seaports;
   - ensuring that controls and inspections in ports are necessary, coordinated and efficient and that government responsibilities are not transferred to ports.

3. Stimulation of the wider community responsibilities of ports – through:
   - supporting the individual efforts of ports to achieve high environmental, safety and security standards through self-regulation;
   - stimulating co-operation and exchange of best practice between ports by supporting pragmatic industry-driven projects;
   - maintaining a proper balance between incentives to competing alternate transport modes.

The Commission adopted the Green Paper in 2006 (COM(2006)275final), which should constitute a first step towards the establishment of such all-embracing EU Maritime Policy. Seaports featured prominently in the Green Paper and were identified as multifunctional areas, being key-elements in the logistic chain as well as in a business location. Moreover, this document acknowledged that the trade and shipping growth depends on having sufficient port capacity and realizes that this necessity is under competition of environmental objectives (Green paper – Towards a future Maritime Policy for the Union, 2006).

In 2007 the Commission presented the Maritime policy Blue Paper (Blue Book), which was identified as a crucial first step for Europe's oceans and seas towards unlocking its potential and towards facing the challenges of a Maritime Europe. The Blue Paper identifies five areas: sustainable use of oceans and seas, knowledge and innovation, quality life in coastal regions, European leadership in international maritime affairs and visibility of maritime Europe and its heritage. Key actions include the development of a European Maritime Transport Space without barriers, a White Paper on maritime transport strategy, a roadmap towards spatial planning, a strategy to mitigate the effects of climate change on coastal regions, reduction of CO_2 emissions and pollution by shipping and a European network of maritime clusters (Future Maritime Policy for the Union, 2008).

1.2 Europe in transition

Intra-EU trade has always represented more than 50% of the EU's total trade (A practical guide for EU policy makers; ESPO, 2004, p. 1). In 2006 it was around 66% (Panorama of European Union trade, 2007, p. 8), what indicates even more significant intra-European trade. The volume of intra-EU trade increased significantly with the enlargement of the EU in 1995, since the trade of Austria, Sweden and Finland is strongly geared to the EU market (Notteboom & Winkelmans, 2004, pp. 5-8). The share of intra-EU trade varies widely from one member state to another. Its share in total imports and exports in Slovenia is above 70%, whereas in Italy this share amounts to less than 60% (Panorama of European Union trade, 2007, p. 40).

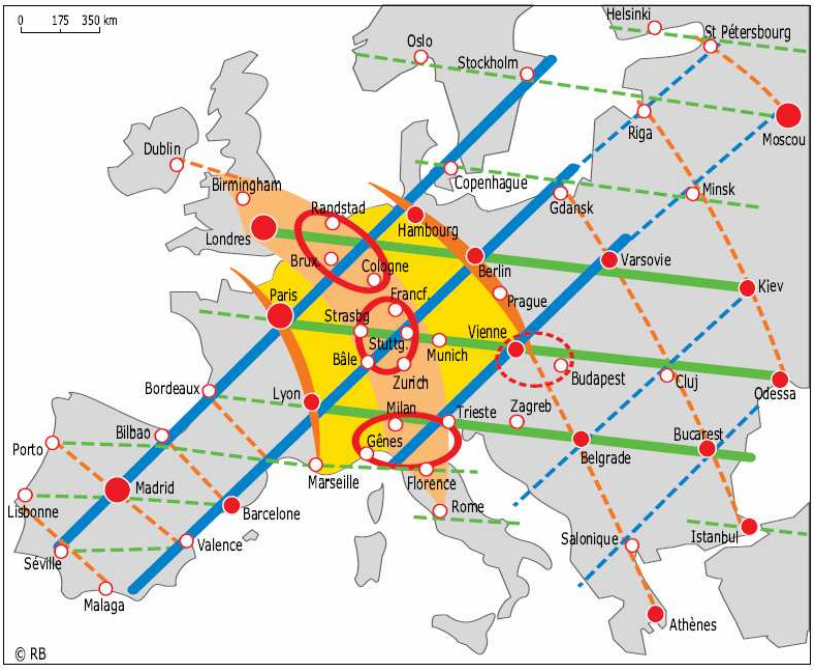
After the crisis that followed the dissolution of Comecon (The Council for Mutual Economic Assistance, 1949-1991), the central and east European countries (CEECs) quickly redirected their trade towards the EU markets. In 1990, the CEECs represented 6,2% of total EU-15 exports and 5,4% of total imports. In 2001 these figures had risen to 14,1% and 11,4% respectively (EUROSTAT database, 2008). With the enlargement of the European Union in 2004 with ten new Member States (mostly CEECs), trade flows are expected to raise even further (Notteboom & Winkelmans, 2004, pp. 10-13).

Although Europe seems to be unified only by its diversity, it is still possible to detect a rather homogeneous economic zone, running from London over the Benelux and the Rhine area towards Milan. This axis, usually called the "Blue Banana", often has been identified as the area that has traditionally shown the greatest development potential in Europe's geo-economy. Moreover, the Blue Banana area covers one of the world's highest population density and large industrial concentrations. Since the 1990s more and more analysts and consultants argue that Blue Banana gradually might loose its dominant position in Europe. In their view, there are establishing other growth areas (see Figure 1, on p. 7). In particular two zones have been identified as future growth pole in the European economy. The first one is so

called “Sunbelt”, running along the Mediterranean coast from Milan to Valencia and the other one, so called “Yellow Banana” from Paris via Cologne and Berlin to Warsaw (Hospers, 2002).

It is expected that the geographical centre of gravity within the EU will move eastwards from the Benelux region to Germany, since the European Union will be largely expanding towards the east. New development opportunities might arise for port systems in the Adriatic and the Baltic Sea. The expansion of the Blue Banana goes hand in hand with a strong development of trade flow in the Baltic area and the Latin arc (stretching along the coastline from southern Spain to northern Italy) (Notteboom & Winkelmans, 2004, p. 12). Due to all above listed facts and expectations, there is no doubt that ports of Trieste, Koper and Rijeka are gaining their gravity in Central Europe market penetration through the Adriatic Sea.

Figure 1: The “Blue Banana” in transition



Source: R. Brunet, Lignes de Force de L’espace Européen, 2002, p. 17, Figure 3.

2 THE MAJOR NORTHERN ADRIATIC PORTS AND THEIR DESCRIPTIVE FACTS

2.1 Geographical position and natural characteristics

Ports derive their strength primarily from their geographical position. Those in the northern Adriatic, where the Mediterranean most deeply penetrates the European continent: Trieste, Koper and Rijeka, are all well placed to serve their hinterland of Northern Italy, Southern

Germany, Austria, Slovenia and Croatia and sudden Central and Eastern Europe, including Hungary, the Czech Republic, Slovakia, Southern Poland and the Ukraine. In doing so, they can draw in the maritime trade running through the Mediterranean Sea, particularly coming through the Suez Canal from Asia and the Far East, as well as a direct trade from countries in the South-East Mediterranean. Moreover, the ports' hinterland covers a vast area with high economic potential and rapidly developing economies (Brady, 1998).

The ports' position on the Adriatic Sea is therefore highly propitious. All three analysed northern Adriatic ports are distant less than 100 kilometres from one another. By the road the distance between those ports and Ljubljana or Vienna is of a minor difference – only 25 kilometres approximately. Thus, it makes no great difference to the customers which port in the North Adriatic to choose. Furthermore, the read connection between some important economic centres in Central Europe (Budapest, Vienna or Bratislava) is from 700 to 800 kilometres shorter in comparison with the ports in the North of Europe. Moreover, the Port Said, which is the port on the Mediterranean Sea of the Suez Canal, is approximately 2000 nautical miles closer to the northern Adriatic ports than to Rotterdam (see Table 1). Therefore, the ship that starts to navigate from the Port Said at the same speed reaches the northern Adriatic ports approximately five days sooner than Rotterdam's port. Consequently, the Northern Adriatic ports keep an important advantage of lower costs of maritime transport and are able to serve their customers with a shorter delivery time.

Table 1: Destination between ports in nautical miles and the time of navigation

Port of Departure	Port of Arrival	Nautical Miles	Time of navigation:
Said (Egypt)	Koper (Slovenia)	1290	5 days and 11 hours
Said (Egypt)	Rotterdam (Netherlands)	3274	13 days and 7 hours

Source: Sea distances – Voyage calculator, 2008.

Those facts are momentarily more in favour of the northern Adriatic ports according to a maritime traffic from the Far East. However, it shouldn't be left out of consideration contemporary most dramatic climatic forecasts of various scientists, which announced the disappearance of Arctic sea ice in the near future. By the alarming presentation of US scientists, the Arctic summers will be ice-free by 2013. This would enable ships to navigate through the Arctic Ocean and draw in Far East countries to more developed Northern Europe ports and consequently severely jeopardize the traffic at northern Adriatic ports (Amos, 2007).

The geographical proximity of all three ports means that there is a great potential for a cooperative approach for their development. Competition between ports should not lead to a duplication of investment which would hinder effective development of the region as a whole. In addition, the North Adriatic region has a skilled workforce which can compete effectively with other regions in Western and Central Europe (Brady, 1998).

Despite its potential for development, however, the North Adriatic region suffers from a number of weaknesses, which have a particular effect on region's ports. Some are inherent for the reason of its geographical situation and must pursue the strategy adopted for the development of the region's transport system, while others are solvable. Among the inherent disadvantages is a barrier created by the Alps which restricts the ability of the region to compete with the northern European ports in supplying the central areas of the European Union. While the Alps can not be levelled, there certainly is a room for improvement in the Trans-Alpine transport systems, particularly what regards rail connections. Without improvement the region will continue to experience problems, similarly like the ports in North-West Italy. Especially what concerns the competition with Northern Europe for the trade within its natural hinterland in Southern Germany and Austria (Brady, 1998).

2.2 Ports' descriptive facts, quality and services

Luka Koper, port and logistic system, is a public limited company. It is the only commercial Slovenian port and one of the youngest in the EU. Their basic activity covers cargo handling and warehousing services for all types of goods, complemented by a range of additional services for cargo are being conducted on 11 specialized terminals (Container and Ro-Ro, Car, General Cargo, Fruit, Timber, Minerals, Cereals and Fodder, Alumina, European Energy, Liquid Cargoes, Livestock). All terminals are connected to rail and road infrastructure (Luka Koper's official web page, 2008).

Luka Koper operates all terminals and the entire infrastructure in the Slovenian port Koper. Together with its subsidiaries they form the Luka Koper Group, employing about 1000 people. Port of Koper is completely connected to international trade and global business. Only 30% or their businesses is being made for Slovenian customers, whereas the rest represents a transit into the neighbouring countries, mostly Austria (26%), Italy (19%), Hungary (8%), Slovakia (5%), Balkan countries (3%), South Germany (2%) and Czech Republic (1%). Luka Koper is more than 50% in the ownership of Republic of Slovenia (Annual Report, Luka Koper, 2007, p. 13).

A sea depth at anchorages of the port of Koper is between 17 and 19 metres, at anchorages of the port of Rijeka it is between 12 and 30 metres and Trieste's port draught is 18 metres, which means that all three ports are able to host oceangoing ships of every size, including last generation vessels.

Rijeka is the third largest city in Croatia and Croatia's largest port. The development of the port of Rijeka as a modern harbour began in the year 1717. In 1913 Rijeka was ranked among the top ten European harbours for its turnover of 2,1 million tons. During the First and Second World War, the port went into decline, but it recovered by 1950 when its turnover reached 2,4 million tons. The war in Croatia in the 1990s caused the stagnation of port of Rijeka again and

cargo ships turned towards the port of Trieste and especially Koper. Since 1996, the trans-shipment in Rijeka port has gradually increased, reaching around 5 million tons of dry cargo and 7 million tons of liquid cargo in the year 2007 (Port of Rijeka Authority, 2008).

Terminals in the port of Rijeka are distributed as follows (Port of Rijeka Authority, 2008):

- General cargo terminal, located in the area of old port centre of Rijeka and in the area of the newly built warehousing complex in Škrljevo.
- Container terminal, located in Bakar.
- Bulk cargo terminal, located in the Rijeka port basin.
- Silo terminal, located in the port area of Rijeka.
- Raša port basin with two specialized terminal: Štalije for general cargo and Brščica for live stock.
- Liquid cargo terminal in Omišalj.

The port of Trieste disposes of 2.304.000 m^2 of port areas, with 13 specialized terminals, which are managed by private companies. The port is subdivided into five different areas, three of which have been assigned to commercial activities: the Old Free Area (Porto Vecchio), the New Free Area (Porto Nuovo) and the Timber Terminal. The remaining two, the Mineral Oils Free Area and the "Canale di Zaule" free area, are used for industrial activities (Autorità Portuale Trieste, 2008).

All three northern Adriatic ports have designated areas which are called Free zones or Free economic zones, also Free ports. Customs regulations at these special customs areas are favourable, which means, there are no custom duties and controls for transhipment. The entire area of Luka Koper has a Free zone status. The port of Rijeka has the Free zone situated in four separate locations with an overall area of 1.190.000 m^2. The port of Trieste disposes of 1.765.000 m^2 Free zone areas in five different locations. Those areas therefore lie outside the jurisdiction of European Union Customs.

Within the Free Port Zones, operators can take advantage of very favourable conditions for carrying out some port activities (Autorità Portuale Trieste, 2008):

- Goods arriving by sea from non EU countries can be freely accepted regardless of origin or destination and are exempt from duty as long as they remain within the port area.
- These goods can be stored without time constrains and can be exported to overseas destinations without a declaration of EU Customs.
- For goods imported into the EU through the Free Port, payment of relevant Customs duties and fiscal border duties can be deferred by up to six months at a low interest rate.

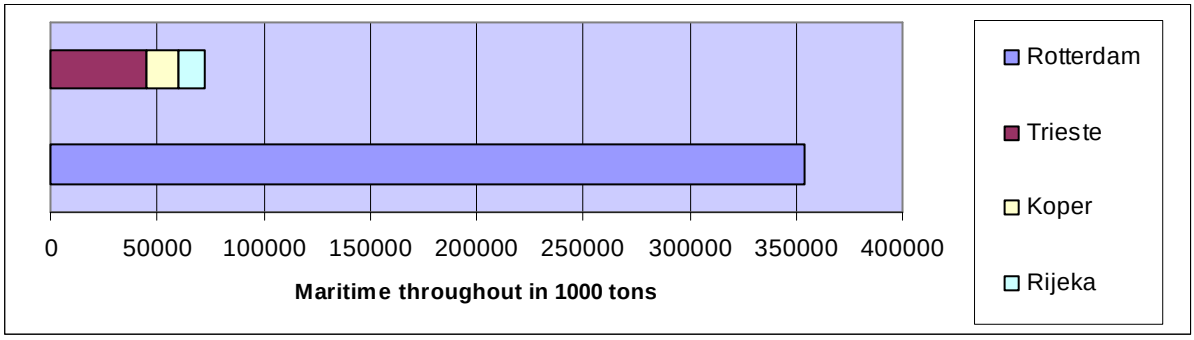
– Goods entering Free Port Zones by land from EU territory are regarded as export goods and can be shipped at any time.

2.3 Maritime throughput of ports of Trieste, Koper and Rijeka

2.3.1 Contribution of northern Adriatic ports to Europe

Northern Adriatic ports of Trieste, Koper and Rijeka would need a mutual collaboration in order to achieve a high competitiveness to Northern Sea ports as it is for example Rotterdam. All three ports together annually reload only one fifth of the Dutch transport volume (See Figure 2). In order to provide a short comparison, Rotterdam is European's largest port with more than 500 regular ship lines, which links the Dutch port with more than thousand ports all over the world. In 2006 Rotterdam's port reloaded 354 million tons of cargo (EUROSTAT database, 2008), what is 2% more than the year before. The table 2 below indicates that ports of Koper, Trieste and Rijeka together represented less than 2% of the maritime throughput of the EU 25 and the port of Rijeka in the period between 2004 and 2006.

Figure 2: Comparison of northern Adriatic ports with Rotterdam in the year 2006



Source: EUROSTAT database, 2008; Own presentation.

Table 2: The maritime throughput comparison of northern Adriatic ports with the largest ports in Central and Western Europe (in 1000 tons)

	2004	2005	2006	%_2004	%_2005	%_2006
EU 25 + Rijeka	3.518.492	3.658.210	3.772.409	100,00%	100,00%	100,00%
Rotterdam (NL)	330.865	345.819	353.576	9,40%	9,45%	9,37%
Antwerpen (BE)	135.511	145.835	151.705	3,85%	3,99%	4,02%
Hamburg (DE)	99.529	108.253	115.529	2,83%	2,96%	3,06%
Gdansk (PL)	22.238	22.478	22.034	0,63%	0,61%	0,58%
Koper (SI)	11.986	12.540	15.391	0,34%	0,34%	0,41%
Trieste (IT)	41.516	43.355	44.644	1,18%	1,19%	1,18%
Rijeka (HR)	13.802	13.849	12.288	0,39%	0,38%	0,33%
Ko+Tr+Ri	*67.304*	*69.744*	*72.323*	*1,91%*	*1,91%*	*1,92%*

Legend: * Ko+Tr+Ri: Koper, Trieste and Rijeka.

Source: EUROSTAT database, 2008; Own presentation and calculations.

2.3.2 The maritime transport analysis of total throughput and by the type of goods

The maritime sector is especially important for the European economy since it comprises a vital link in the transport chain. In 1999, 70,8% of total trade between the EU Member States with third countries (extra-EU trade), and 28,2% of intra-EU trade was directly related to the transport by the sea (Chlomoudis & Pallis, 2002, p. 4-5). However, ports' throughput is also strongly conditioned on some other important factors, as for example their transport infrastructure link to important economic centres. Therefore, I present this issue in the chapter four.

In recent years all analysed northern Adriatic ports are facing a positive trend of the maritime throughput of goods. In Luka Koper, the maritime throughput increased by 22,7% from 2005 to 2006 on average, whereas in Trieste it increased by 2,9% respectively. The reason for Koper's considerable throughput increase is mainly the higher throughput of containers. In Rijeka the total throughput has a positive trend of growth, irrespective of its decrease by 11,3% in 2006, mainly because of lower throughput of liquid bulk goods. Namely, in 2007, the total maritime transport through port of Rijeka increased by 19,2%.

According to the port's quay length, Luka Koper is the shortest one with 2.600 metres. In Trieste the quay is 12.100 metres and in Rijeka 7.200 metres long. However, it seems that Luka Koper has taken the best advantage of its limited quay space. In the nineties Luka Koper has turned the instability of the southern neighbour and the paralysis of Trieste's port administration to its own advantage (Lipnik, 2007).

Table 3: Actual annual data for maritime transport of goods by port and direction in thousands of tons (1000T)

	Koper			Trieste			Rijeka		
Year	**Inwards**	**Outwards**	**Total**	**Inwards**	**Outwards**	**Total**	**Inwards**	**Outwards**	**Total**
2001	6.648	2.462	9.110	40.665	4.047	44.712	n.a.	n.a.	10.580
2002	6.624	2.622	9.246	39.313	4.404	43.717	n.a.	n.a.	10.778
2003	7.643	3.077	10.720	38.035	3.531	41.566	n.a.	n.a.	12.433
2004	8.715	3.271	11.986	38.383	3.133	41.516	n.a.	n.a.	13.802
2005	8.960	3.580	12.540	39.658	3.697	43.355	10.050	3.799	13.849
2006	10.501	4.890	15.391	40.255	4.389	44.644	8.763	3.525	12.288
2007	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11.009	3.644	14.653

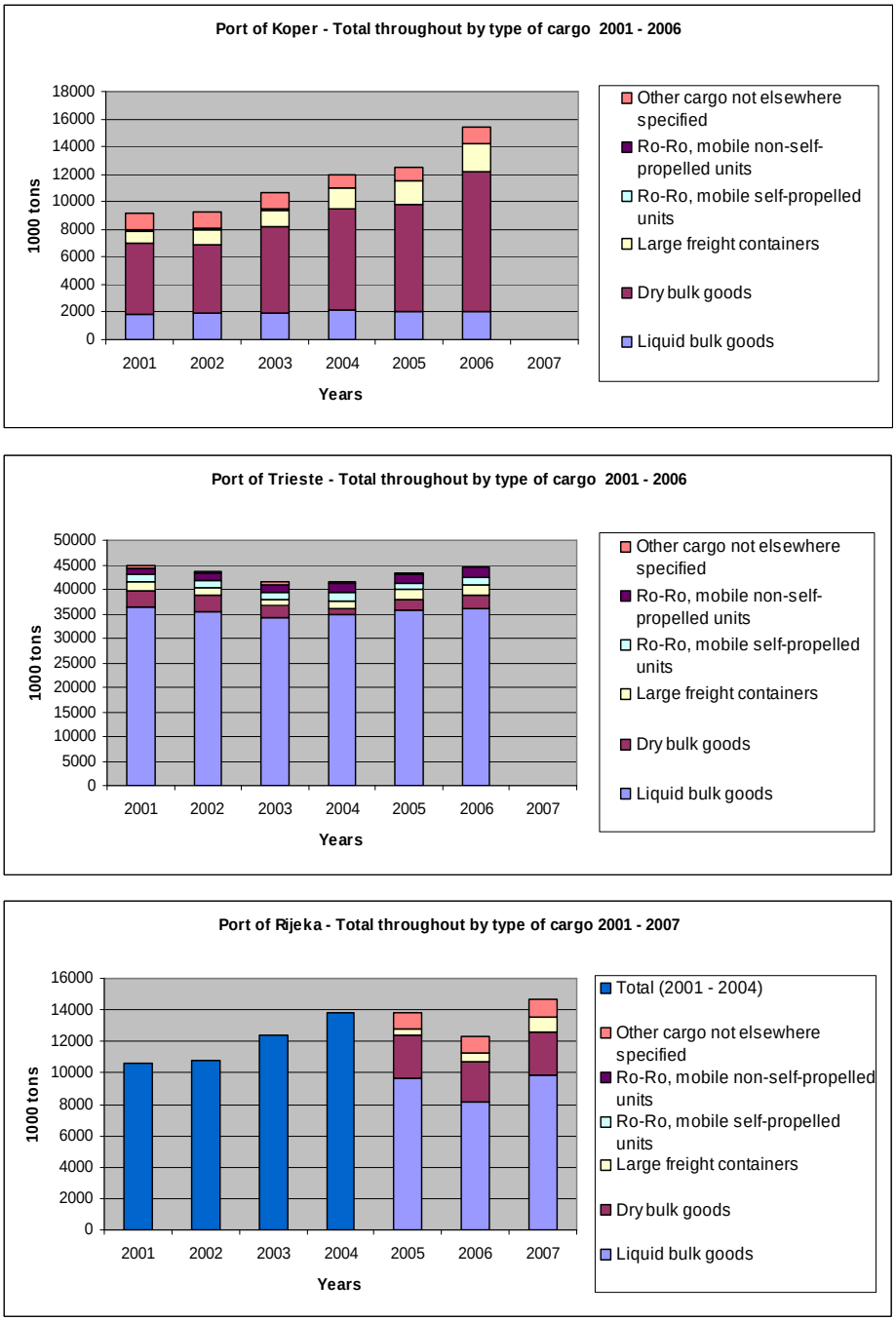
Legend: n.a. stands for not available.

Source: EUROSTAT database, 2008; Own presentation.

The share of imported goods at northern Adriatic ports is at least twice as large as the share of exported goods. In the port of Trieste this share is approximately even ten to one. The major reason can be found in their role of a gateway to countries of Central Europe, especially for goods coming from the Far East. Ports of Koper and Rijeka have quite resembling throughput, with 15 million in Koper and 12 million in Rijeka in 2006. Their annual maritime throughput growth reaches from 680.000 to 1.200.000 tons in average. The port of Trieste has much

greater throughput capacity with 45 million tons in 2006, but comparing Koper and Rijeka it has a lower annual growth of approximately 330.000 tons in average. The main reason for Trieste's greater throughput is its greater capacity for liquid bulk goods and Ro-Ro mobile units.

Figure 3: The Maritime transport by type of cargo



Legend: * For the port of Rijeka there are available data only for total throughout from 2001 until 2004

Source: EUROSTAT database, 2008; Own presentation.

The explanation of specifications used in Figure 3 (on p. 13):

- **Liquid bulk:** Liquefied gas, crude oil, oil products, and other liquid bulk goods.
- **Dry bulk:** Ores, coal, agricultural products (e.g. grain, soya, tapioca), other dry bulk goods.
- **Large containers:** 20 ft freight units, 40 ft freight units, Freight units > 20 ft and < 40 ft, Freight units > 40 ft.
- **Ro-Ro mobile units:**
    a) **Mobile self-propelled units:** Road goods vehicles and accompanying trailers, passenger cars, motorcycles and accompanying trailers/caravans, passenger buses, trade vehicles (including import/export motor vehicles), live animals on the hoof, other mobile self-propelled units.
    b) **Mobile non-self-propelled units:** Unaccompanied road goods trailers and semi-trailers, unaccompanied caravans and other road, agricultural and industrial vehicles, rail wagons, shipborne port-to-port trailers, and shipborne barges engaged in goods transport, other mobile non-self-propelled units.
- **Other cargo, not elsewhere specified:** Forestry products, iron and steel products, other general cargo.

2.3.3 The forecast of maritime traffic flows through ports of Trieste, Koper and Rijeka with the aid of linear trend model

Methodology – Linear trend (See calculations in Appendix 2)

All available national and European statistical databases, related to the transport sector have been addressed for the forecasting analysis, using the linear trend model. The letter is modelled by a least squares function and the starting point in the mean of disposable time series. The forecasting analysis in the case of port of Koper applies to statistical data for the period 2001 to 2006, in the case of port of Trieste it applies to statistical data for the period 1997 to 2006 and in the case of port of Rijeka it applies statistical data for the period from 2000 to 2007, respectively. The forecasting graphic results for the maritime traffic flows until the year 2009 and additional linear trend formulas can be seen in the Figure 4 below (on p. 16).

The linear trend model can be written as:

$$T_x = \alpha + \beta x \qquad (1)$$

Where:
x = a transformed time series according to the starting point in the mean of a time series.
α = the average annual maritime flow of individual port in the given time series.
β = the annual trend increase of the maritime flow of the individual port in the given time series.

Coefficient α:

$$\alpha = \overline{Y} = \frac{\sum y}{N} \qquad (2)$$

Coefficient β:

$$\beta = \frac{\sum Yx}{\sum x^2} \qquad (3)$$

Where:
y = maritime throughput in 1000 tons in a specific year.
Y = sum of maritime throughput in 1000 tons for all analysed years.
x = adjusted time factor according to the mean of time series.

Assuming that in the following years diverse factors would have the same influence on the maritime transport by the analysed port, as they had had in the analysed time series, the linear forecasts would be as follows in the Table 4. The actual value would vary from forecasted value due to the influence of cyclic and irregular factors.

Table 4: The forecast until the year 2015 of total maritime throughout of goods by port in thousands of tons (1000T)

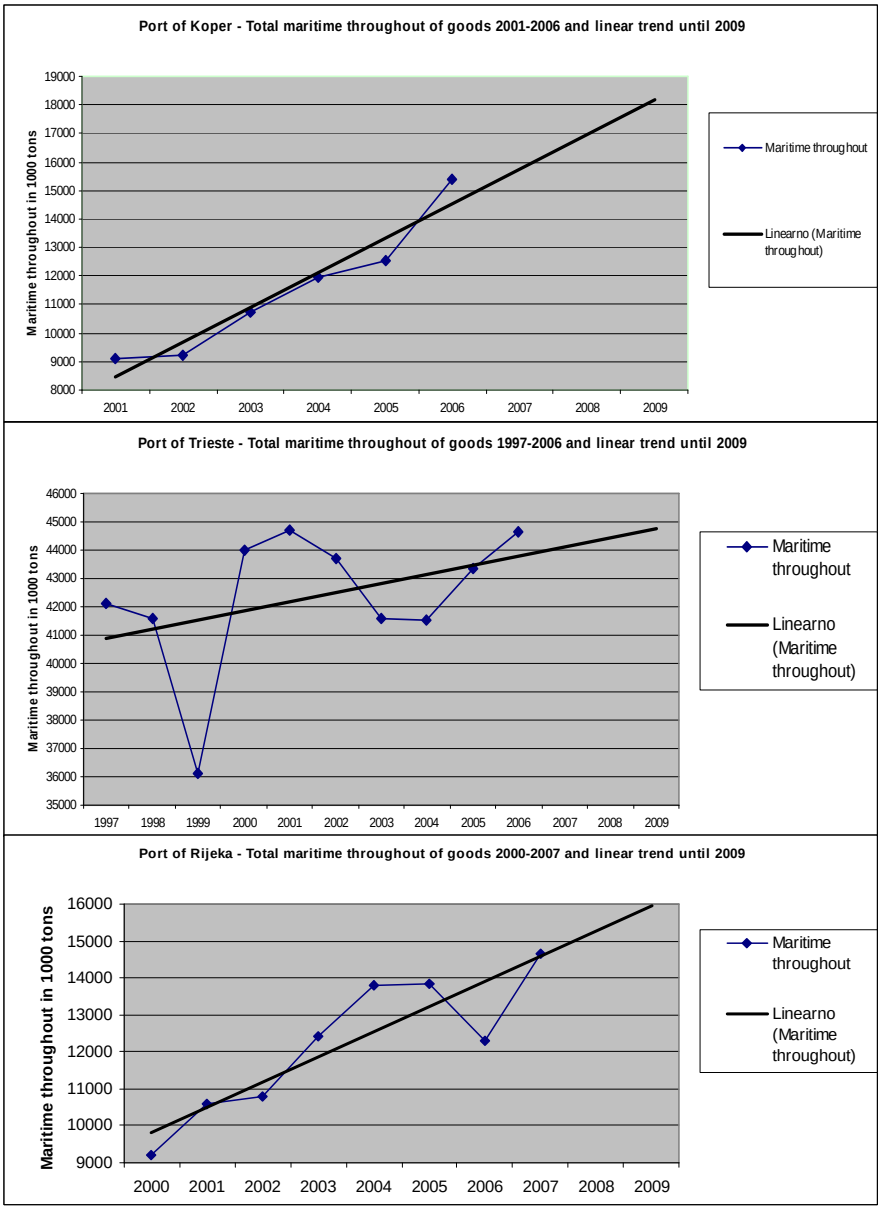
Year	Koper	Trieste	Rijeka
2007	15.751	44.131	n.a.
2008	16.966	44.459	13.432
2009	18.180	44.786	14.113
2015	25.467	46.750	18.198

Legend: n.a. stands for not available.

Source: Own calculations.

According to the forecasting analysis, ports of Koper, Trieste and Rijeka suppose to increase their collective maritime throughput from 72 million tons in 2006 to 77 million tons until 2009. Using the linear trend model, it is expected that all three ports can attain collective maritime throughput close to 100 million tons in 2015. It is to be expected that the collective throughput will even exceed the forecasts of 100 million due to rather optimistic announcements of future ports' modernizations, especially in Koper and Rijeka (see "Future aspects" in chapter 2.4).

Figure 4: Total maritime throughout of goods and linear trend until the year 2009



Source: EUROSTAT database, 2008; Own presentation.

2.3.4 Container traffic

Container traffic by the use of intermodal freight transport is rapidly increasing all over the world. In doing so, the freight is transported in containers, using multiple modes of transportation (ship, rail and truck). The main advantage is that there is no need of intermediate handling of freight itself when changing modes of transportation. Besides minor cargo handling it brings also further advantages as higher cargo security protects against damage and it allows faster transportation. The capacity of containers is usually measured in TEUs, which stands for “twenty-foot equivalent unit”.

All northern Adriatic ports have a positive trend in container throughput growth. The highest capacity in container throughput had the port of Koper with 306.942 TEU in 2007 or 38% growth as regards 2006. Even higher, 57% growth in 2007 achieved the port of Rijeka. To such successful results significantly contribute over occupied Northern ports and modernization of terminal infrastructure. The port of Trieste has a perceivable decline of container throughput in the year 2007 (see Figure 5, on p. 19).

Table 5: Total annual throughput of containers in TEU (Twenty-foot equivalent unit)

Year	Koper	Trieste	Rijeka
2003	194.447	95.747	25.000
2004	151.590	149.551	54.000
2005	210.343	182.713	76.069
2006	222.049	196.173	94.362
2007	306.942	n.a.	148.161

Legend: n.a. stands for not available.

Source: EUROSTAT database, 2008, Own presentation.

According to the current trends, by 2010 the container throughput in Europe is suppose to rise for more than one hundred percent and reach approximately 100 million TEUs (Arh, 2008, p. 1.).

Not many years ago, the transport of goods to the Balkan has still run classically through northern ports. In doing so, the transportation costs are up to 60 percent higher than transportation in containers. Furthermore, higher is also the share of reloading costs, which is 0,4 percent by the classical transport and only 0,07 percent by the container transport. Much lower are also the costs of wrapping and packaging, which depreciate by 80 percent, dependent on the type of cargo and type and mode of transport. These factors importantly contribute to development of container trade in Adriatic Sea (Beškovnik, 2008, p. 46).

Container terminals are forced into permanent adjustment to a current demand and into following customer's needs (technical and technological update activity). The most important are the specialized container vessels. Their development is directed towards a greater efficiency and tonnage. Nowadays we are facing a new constructions trend of vessels with the tonnage over eight thousand TEU; in other words, the vessels 347 meters long and 43 meters wide. Not many ports have enough space to cord a vessel of that length. For this reason the philosophy of further development should be altered.

Methodology – Moving averages (See calculations in Appendix 3)

The container traffic in Northern Adriatic ports is analysed with the moving average model. I apply this model in order to smooth out the short-term fluctuations and thus highlight the long-term trend. Data are available on the quarterly basis, therefore r=4.

r=4=2i → i=2 → the first moving average is in the third quarter (i+1=2+1=3)

$$ {}_r d_{t+1} = Y_{t+1} - Y_{t+1-r} \qquad (4) $$

$$ S_r = Y_1 + Y_2 + ... + Y_r \qquad (5) $$

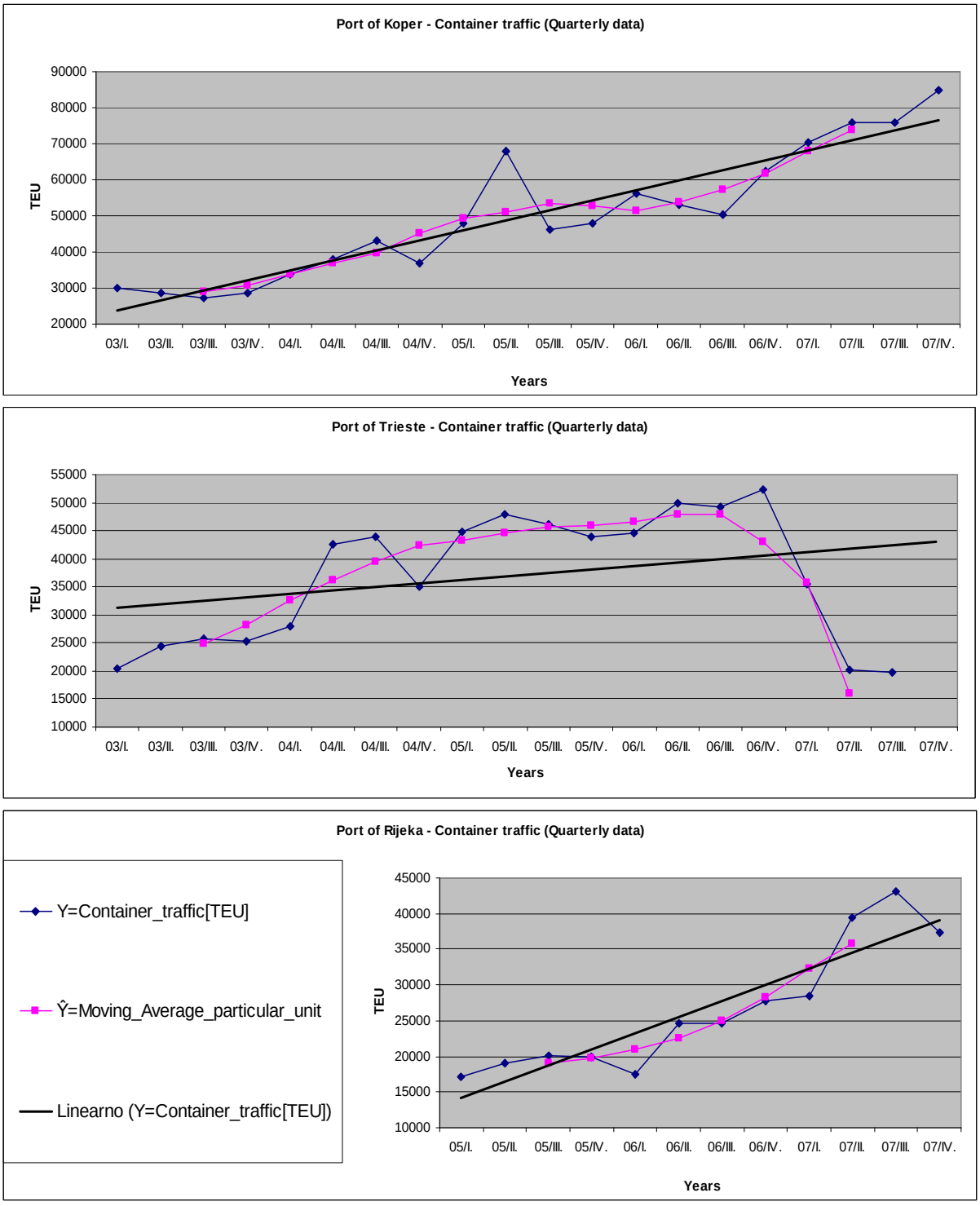
$$ \overline{Y}_{t-i+1} = \frac{S_t + S_{t+1}}{2r} \qquad (6) $$

Where:

S = a moving average as a sum of a phenomenon value for interval composed of r time sections.

Y = a time series of means for a momentary time series where data refer to the beginning or the end of a time unit.

Figure 5: Time series for Container traffic in individual port with Moving averages and Linear Trend



Source: EUROSTAT database, 2008; Own presentation and calculations.

As the economy of the Far East, especially the four Asian Tigers (Hong Kong, Singapore, South Korea, Taiwan), rapidly grows, it is evident that the maritime trade between those countries and Europe grows simultaneously. The maritime trade in containers between the Far East countries and EU 25 grew for 13% in 2006 as regards 2005 and reached almost 19 million TEUs (see Table 6, on p. 20). Goods in containers coming from the Far East countries

represented 30% of all goods coming to EU 25 through maritime transport in 2006. Ports of Koper, Trieste and Rijeka took together less than 1% of all these containers. As far as available data indicate, the port of Trieste represented only 0,42% overall container trade between EU 25 and the Far East countries in 2006. Among the Asian countries, China represents the biggest share in container trade between EU 25 and the Far East.

Table 6: Container traffic between Europe and the Far East in 2005 and 2006 in TEU

ports	EU 25		Koper			Trieste			Rijeka		
Asian countries	2005	2006	2005	2006	%_EU_06	2005	2006	%_EU_06	2005	2006	%_EU_06
China without HK	6.664.848	8.152.337	11.837	22.859	0,28%	33.430	32.062	0,39%	39.589	51.889	0,64%
Hong Kong (HK)	2.097.050	2.224.383	2.431	1.946	0,09%	17.139	16.240	0,73%	358	770	0,03%
China with HK	8.761.898	10.376.720	14.268	24.805	0,24%	50.569	48.302	0,47%	39.947	52.659	0,51%
India	675.392	738.711	n.a.	n.a.	n.a.	2.233	1.221	0,17%	n.a.	n.a.	n.a.
Indonesia	253.261	157.102	n.a.	n.a.	n.a.	12.863	19.159	12,20%	n.a.	n.a.	n.a.
Japan	1.016.854	1.093.832	n.a.	n.a.	n.a.	456	419	0,04%	n.a.	n.a.	n.a.
Korea (south)	775.157	779.148	n.a.	n.a.	n.a.	855	1.088	0,14%	n.a.	n.a.	n.a.
Malaysia	1.236.715	1.253.174	9.841	8.081	0,64%	6.649	3.738	0,30%	5.822	7.089	0,57%
Taiwan	949.642	872.563	n.a.	n.a.	n.a.	468	4.046	0,46%	n.a.	n.a.	n.a.
Vietnam	54.897	39.011	n.a.	n.a.	n.a.	2.539	316	0,81%	n.a.	n.a.	n.a.
Singapore	2.828.593	3.399.924	n.a.	n.a.	n.a.	372	368	0,01%	n.a.	n.a.	n.a.
Total Asia	16.552.409	18.710.185	n.a.	n.a.	n.a.	77.004	78.657	0,42%	n.a.	n.a.	n.a.

Legend:

- %_EU_06: percentage of individual port as a contribution to EU 25 in 2006
- n.a.: not available

* The port of Rijeka is not included in EU 25; its place in the table is exclusively for comparison reasons.

Source: EUROSTAT database, 2008; Own presentation.

2.4 Future aspects of Northern Adriatic ports

2.4.1 Port of Koper

Luka Koper is planning to extend the pier I, which represent an introductory, medium-term solution for enhancing the scope of containers. Namely, by 2010 the existing container terminal will gain an additional mooring and new hinterland property for container throughput. It will also be possible to moor the largest ship with a capacity of 8000 TEU. The largest container vessel in Koper so far was moored in March 2008. This vessel called "Ital Laguna", whose over-all length is 294 metres, can carry up to 5.100 TEUs (Annual report, 2007).

The main plans for 2008 are also (Annual report, Luka Koper, 2007):

- The expansion of activities at the inland terminal in Sežana and the construction of a terminal in Divača.
- Preparations for setting up the Pomurje and Podravje logistics terminals.

- Establishment of a land container terminal in Arad, Romania.
- Future activities to set up land terminals and distribution centres in Hungary.
- Improved structure of throughput by increasing container, fruit, vegetables and car throughput.
- Launching a distribution centre for steel products.
- Events for customers and promotion in key markets, especially in the Far East, to heighten the visibility of the transport route and logistics connection via Koper.
- Constructing a new entrance to the port and inner road connections to the motorway network.
- Starting phase one of construction of the new car warehouse, which will initially provide 2750 parking places, but in the long-term they plan to obtain covered warehouses for more than 100.000 cars.
- Construction and reconstruction of railway infrastructure at the port.

With the enlargement of the pier I and erection of two post panamax ship-to-shore cranes[3], the capacity of the terminal will increase from 400.000 to 600.000 TEUs. Later on, Luka Koper plans to construct a new third pier for containers and it will be equipped with three post panamax and three panamax ship-to-shore cranes to be able to handle 1 million TEUs per year. On the second pier there will be modern warehouses for dry bulk and liquid bulk cargoes. They will build new shore tanks for oil derivatives (Luka Koper's official web page, 2008).

Slovenian has announced in it's future spatial planning for the autumn 2008, when the third pier construction in Luka Koper should be enabled, which would surpass annual cargo throughout over 22 million tons (Lipnik & Sovdat, 2007).

The Sežana European distribution centre, in the approximate vicinity of two Pan-European Corridors (V and X), is the first in a series of logistics and distribution centres within the logistics system of Luka Koper. They are managing approximately 120.000 m^2 of area for the time being. Once the centre is completed, it will cover about 650.000 m^2 in total. There will be a container and a car terminal as well as multipurpose and racking system warehouses. The "Panonija" distribution centre in the Prekmurje region will start operating in 2009, and the land container terminal in Arad, Romania, next to Corridor IV, will begin operations already at the end of 2008. Luka Koper has also signed a letter of intent regarding the construction of terminals in Hungary (Annual Report, Luka Koper, 2007).

[3] A Panamax ship-to-shore crane: A large dockside container crane used for loading and unloading container ships of 12-13 container rows wide. A Post panamax ship-to-shore crane: A large dockside container crane, within hand reach of 51 metres – used for ships of normally about 18 container rows wide (8000 TEU).

2.4.2 Port of Trieste

Modernization of port of Trieste will involve the areas of Porto Nuevo between the timber pier and the minerals oils free port. The project which includes the building of new quays, with the consequent availability of large areas for yards and the construction of new berths for large vessels will provide the port with an ideal infrastructure for the development of economic activities targeted to the growth of specialised and intermodal transportation. More concrete plans are to enlarge the container terminal area and to renovate and develop a new railway yard to promote the rail transportation. Additionally, the passenger terminal pier will be extended (Autorità Portuale Trieste, 2008).

2.4.3 Port of Rijeka

By 2009 the port of Rijeka is planning to modernize its facilities with so called "Rijeka Gateway project", which has been initiated by Croatian Government in cooperation with the World Bank. The project will help to increase the competitiveness of the Croatian economy by improving the international traffic sector in Rijeka for cargo transport and modernizing the connections between the harbour and road networks through better road and bridge maintenance. Thus, it will be established a dominant traffic route in Croatia, connecting seaways with European road and railway corridors. The corridor V already enables port of Rijeka to generate 40% of its cargo traffic with Hungary, Austria, Slovakia and the Czech Republic. The World Bank believes that traffic growth should make Rijeka one of the main ports in the Central and Eastern Europe.

It is planned to encompass the port with the project the construction of the east wing of the Rijeka roundabout (D-404; 4,4 km long), from Orehovica to Križišće, of the connecting roads Draga – Brajdica and Čavle – Križišće and the reconstruction of the bridge coast – island of Krk[4]. By the realization of this project Rijeka and the broader region will have a qualitative connection to the highway Rijeka – Zagreb – Budapest, which is a part of European traffic corridors. The construction of a new multipurpose terminal (containers, timber, general cargo) and a new, so called Zagreb wharf, the port of Rijeka will dispose with additional 300.000 m^2 (Port of Rijeka Authourity, 2008).

3 COLLABORATION OF NORTHERN ADRIATIC PORTS

If northern Adriatic ports acted jointly, the volume of goods coming in Europe through Adriatic Sea could increase for several times. Because none of these ports could handle such

[4] The terminal for liquid cargo is located in Omišalj on the island Krk.

an increase by itself, they must join forces and create a joint offer of northern Adriatic ports (Rakar, 2000, pp. 54-54).

As early as 1717, the king of Bohemia and Hungary Charles VI, who already became aware of northern Adriatic Sea potential, first proclaimed the free navigation of the Adriatic sea and later on founded ports in Rijeka and Trieste. The port of Koper has been founded not until 40 years later. Despite adequate spatial area all three Adriatic ports rather hinder their selves than try to deprive some vessels of northern giants. A part of reasons for that are personal interests or more specifically, personal interests of the commune, which manages Trieste's piers. Jeopardy of reaching collaboration is also of a political nature as both, Ljubljana and Zagreb contribute to majority state share in both ports (Lipnik, 2007).

Moreover, a burning question is becoming the physical limitations of Koper's port – beside the notorious second railway track, also the limited Adriatic Sea area, which will become a target of ecological problems by further maritime traffic increase (Lipnik, 2007).

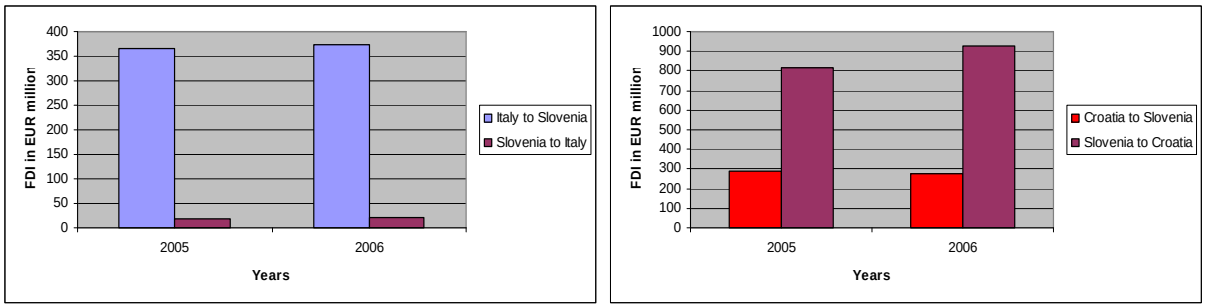
The competitiveness of the regions ports has been restricted by relatively poor transport infrastructure, both road and rail. While there is no opportunity as in the case of the North Sea ports to use inland water-way links, in recent years a good deal of effort has been put into strengthening the road network, particularly in Italy and Slovenia. Plans are now also advancing for better links between Rijeka and the hinterland, linking up to the main Trans-Balkan highway in Zagreb. However, links through to Hungary and beyond still require further work. The situation is much less satisfactory what regards the rail network since all three ports are principally dependant on lines which were laid down in the 1890 and have only seen limited improvement since then. This is all even more concerning, as within the Union, we were than once again witnessing some growth in rail freight transport, which was 10% up in 1997, following a drastic decline since the 1960. With growing political pressures to move traffic off the roads or at least to ensure the traffic growth shifts mainly on rail. The region risks loosing out to other EU countries, where the rail connections are already being improved; obvious examples are Belgium and the Netherlands. Development in the region has always suffered from the existence of the current boarders. This has inhabitable led to a policy of separated development for each of three port areas with partial duplications of facilities and hence investments which are at least in the short run economic-unviable. The long term economic health of the region as a whole would certainly be improved by the implementation of a common strategy on port and transport system development (Brady, 1998).

According to the deposition of a former principal director of Luka Koper, there are at least two major barriers for collaboration between ports of Trieste and Koper. Firstly, Trieste is settled as port's administration, where is yet basically not possible. Secondly, all the aspirations for collaboration will probably be undermined by Italian Right as it has been done by all precedent trials (Lipnik & Sovdat, 2007).

North Adriatic ports are more likely to become logistic and distribution centres for the penetration of overseas trade flows in European markets and for European exports to overseas markets, rather than becoming important industrial harbour. Moreover, adequate rail and road connections with the hinterland and ports can provide the cargo specialization and division of labour (Korelic, 2000).

While addressing collaboration between northern Adriatic ports, it is reasonable to take a glance over foreign direct investments (FDI) between neighbouring countries. The figure 6 below indicates a great gap in FDIs between Slovenia and Italy. Italy as the investor country in Slovenia at the end of 2006 with investments of EUR 374,3 million vastly exceeds Slovenian direct investments in Italian companies with only EUR 20,1 million. In 2006 Slovenian companies held most FDIs in Croatia (EUR 926,9 million), whereas Croatia held investments of EUR 278 million in Slovenian companies.

Figure 6: FDI in EUR million between neighbouring countries



Source: The Bank of Slovenia, 2008; Own presentation.

3.1 NAPAN

A joint approach of Northern Adriatic ports has been discussed within the framework of the international Conference "EU and Cross-border Regional Cooperation: the Northern Adriatic Ports of Trieste, Koper and Rijeka" in 1998 in Portorož. The outcome of this meeting was the establishment of the organization named "North Adriatic Port Area Network" (NAPAN) with the aim to implement the cross-border economic cooperation in north Adriatic area, with particular reference to the transport infrastructure development and the cooperation between northern Adriatic ports. This association should be done by collaboration of representatives of local authorities, chambers of commerce, industry and interested businesses. Additionally, their cooperation programmes should help to support regional development, select the most adequate working divisions and specialization of these three ports. A key objective, which is in addition supported by EU, is to transform the present ports of Trieste, Koper and Rijeka into a single integrated port system with specialized individual infrastructures.

The conference was coordinated by the Institut d'études européennes (IEE) of the Université catholique de Louvain (Belgium) and was supported by the Central European Initiative (CEI), European Commission and the European Bank for Reconstruction and Development (EBRD). The conference was organized by the Economic Chambers of Slovenia and Croatia and by Institute for Studies and Documentation EU and Eastern Europe (ISDEE) from Trieste. Representatives of the Working Community Alps-Adria, individual regions in the hinterlands of Northern Adriatic ports, European Seaports Organization (ESPO), academic institutions and ports, state and regional governments from the countries of Northern Adriatic ports area participated at the conference (Trupac & Kolenc, 2002, p. 9).

3.2 The pier seven and the company TICT

Trieste's seventh pier (Molo VII), which represents container terminal, was managed by a private company "Trieste International Container Terminal" (TICT). For less than three years this terminal was managed by Luka Koper, with the biggest stake (70%) in TICT. In 2001 Luka Koper gained a 30-year concession to manage Trieste's seventh pier, but it withdrew its shareholder part with the great loss in the end of 2004 due to, according to company's deposition, political reasons. In order to replace plans in Trieste's port, Luka Koper started with construction of the third pier in the port of Koper.

After Luka Koper's withdrawal, different beliefs have been expressed about the cause of unsuccessful management and collaboration. Luka Koper decisively accused Trieste's port policy. The president of the management board of Luka Koper, at the time when they managed seventh pier, Bruno Korelič, declared that the major reason was the negative relations of inhabitants of Trieste to Slovenes (Ručna, 2004).

Further reasons were unperformed duties of the company TICT at Trieste's port authority. A company TICT failed to realize defined investments, strengthen competitive position of the terminal, and to increase collaborative promotion. Besides overall reorganization problems, employees launched several strikes due to numb work organization.

The linkage and collaboration of ports at the certain level are indisputably urgent nowadays. Both Koper and Trieste were referring to northern-Adriatic ports' specialization, which was unacceptable in that period. With the use of that specialization they were supposed to meet requirements of fundamental ports' attributes – collaboration and competition simultaneously. Trieste's ports authority has expected that container traffic would have concentrated on the seventh pier and that Luka Koper would have resigned from its own container traffic for taking in exchange Trieste's container terminal management relative takeover (Prijon, 2004). Critics were also accusing Luka Koper that the second railway track has precedence over the project of constructing a railway connection between Trieste and Koper.

Despite Koper's failure to manage Triese's seventh pier, the collaboration between northern Adriatic ports has not used all feasible levers. Their great opportunity of mutual operation is a joint approach to ports' promotion on markets which gravitate towards northern Adriatic.

Italians are willing to invest in the port of Koper if, in exchange, they get operational independence. The problem is that Koper's port is organized monopolistically. Therefore the port is run by the company's board instead of by its shareholders. In Trieste, the situation is different because the port is totally privatized. In order to strengthen the role of the North Adriatic and improve cooperation between Trieste and Koper, such an agreement should be reached that any Slovenian company could freely invest in the port of Trieste under the same conditions as Italian companies investing in the port of Koper. This does not mean that prices would be the same, but investment conditions have to be made uniform (Rakar, 2000, p. 53).

4 NORTHERN ADRIATIC PORTS AS A GATEWAY TO CENTRAL EUROPE

4.1 Pan-European corridors

In 1993 Europe adopted sets of planned road, rail, air and water transport networks designed to serve the entire continent of Europe, which are collectively named Trans-European Transport Networks (TEN-T). In addition to the TEN-T networks, ten Pan-European Corridors and Areas were established during three Pan-European Transport conferences. Moreover, since the enlargement of the EU in 2004, most of the corridors are now part of the TEN-T network. A new transport infrastructure development takes aim in the need of rapid traffic flows growth.

The first Pan-European conference took place in Prague in 1991, when the overall concept was developed. At the second conference in Crete in 1994 nine transport corridors were defined as priorities. The third conference in Helsinki in 1997 contributed a tenth corridor and the Pan-European Areas for maritime basins. The transport corridors that link northern Adriatic ports with Central and Eastern Europe are corridors V and X, which both intersect in Slovenia.

In 2003 the Commission has identified the 30 priority projects of the TEN-T up to 2020. The priority projects include: *"the most important infrastructure for international traffic, bearing in mind the general objectives of the cohesion of the continent of Europe, modal balance, interoperability and the reduction of bottlenecks"* (Country report Slovenia, 2006, p. 7).

The alignment of the Corridors and Areas can be summarized as follows (Pan-Eurostar, Final Report, 2005, pp. 13-14):

- Corridor I: Helsinki – Tallinn – Riga – Kaunas – Warsaw with the components
    1. Branch: Riga – Kaliningrad – Gdansk

- Corridor II: Berlin – Warsaw – Minsk – Moscow – Nizhny Novgorod

- Corridor III: Dresden – Wroclaw – L'vov – Kiev

- Corridor IV: Dresden – Prague – Vienna – Bratislava – Budapest
  Branches to Nuremberg, Bucharest – Constanta and Sofia – Thessaloniki/Istanbul

- Corridor V: Venice – Trieste – Koper – Ljubljana – Budapest – Uzgorod – L'vov (Kiev)
    1. Branch: Bratislava – Košice – (Uzhgorod) – L'vov (Kiev)
    2. Branch: Rijeka – Zagreb – Koprivnica – Dombovar
    3. Branch: Ploče – Mostar – Sarajevo – Osijek – Budapest

- Corridor VI: Gdansk – Grudziadz/Warsaw – Katowice – Zilina
  Branch to Brno

- Corridor VII: The Danube waterway with components

- Corridor VIII: Bari and Brindisi – Durres and Vlore – Tirana – Skopje – Sofija – Varna and Burgas
    1. Branch: Cafasan – Kaphstice/Kristallopigi
    2. Branch: Sofia – Pleven – Byala/Gorna Oriahovica
    3. Branch: Burgas – Svilengrad – Ormenion

- Corridor IX: Helsinki – St. Petersburg – Pskov/Moscow – Kiev – Ljubasevka – Chisinau – Bucarest – Dimitrovgrad – Alexandroupolis

- Corridor X: Salzburg – Ljubljana – Zagreb – Beograd – Niš – Skopje – Veles – Thessaloniki
  Branches to Graz, Budapest, Sofija and Florina

In addition to the improvement of long-distance transport network, the Helsinki declaration indicated that the EU's interest goes beyond. Nevertheless, the Corridors do have a considerable political weight – not least as regards domestic spending by the candidate

countries. That is certainly how Slovenia has interpreted its responsibilities regarding Corridors V and X which transit its territory. It has heavily invested in these links – even at the possibly unpopular expense of much needed investment in local roads. In 1996, the budget allocation for highways was SIT 18,8 billion (EUR 78,5 milliard), as against SIT 12,0 billion (EUR 50 milliard) for other roads, SIT 3,1 billion (EUR 12,9 milliard) for railways and SIT 3,1 billion (EUR 12,9 milliard) for the whole energy sector[5]. It has done so in the same spirit in which it seeks early application of the regulatory acquis of the Union – to prove without doubts its capacity to become a fully functioning member of the Union's economy. Hungary worked from similar policy premises (Wolfgang & Wolfgang, 1998, p. 10).

4.2 Pan-European Corridors through Slovenia

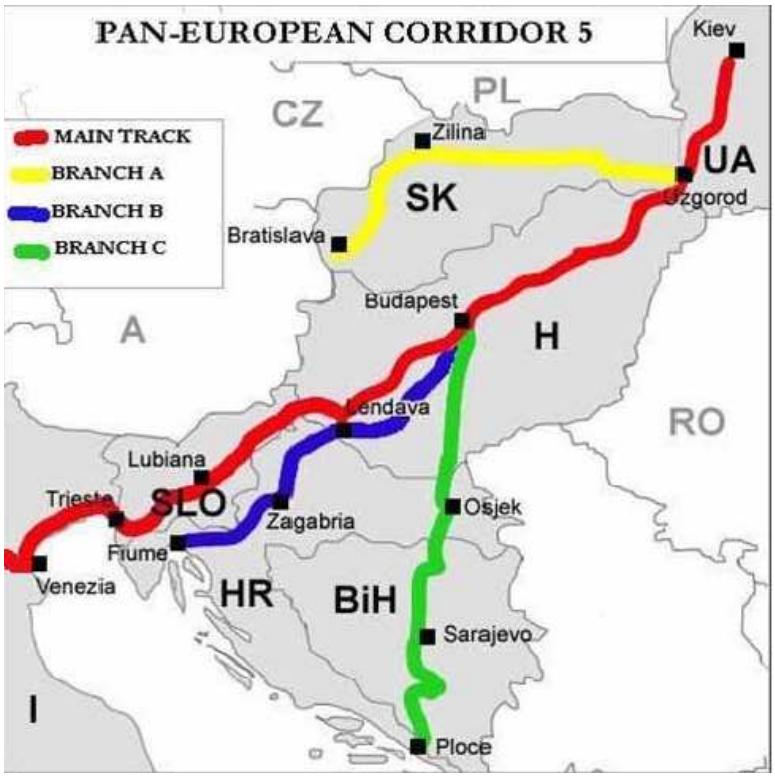
4.2.1 Corridor V

The main Pan-European track of the Corridor V leads from Venice in Italy to Kiev in Ukraine with approximately 3270 km of railways and 2850 km of roads (Venice-Trieste/Koper-Ljubljana-Maribor-Budapest-Uzgorod-L'vov-Kiev). Therefore, it connects Central Europe to the Mediterranean and additionally, represents the fastest link between the North Adriatic and the Central and the Eastern Europe. Besides the main track, the Corridor V includes three branches. The second and the third branch extend towards two Croatian Adriatic ports (Rijeka and Ploče), which both represent an important gateway to Central Europe.

The existing and planned transport links between Slovenia and its neighbouring countries in accordance with the planned corridors running through the Port of Koper and having an exit to the sea, are those development possibilities of which Slovenian transport businesses and other businesses must take a full advantage, because they will boost the economy of the entire country. Every extra quantity of goods (ton of goods) represents an extra EUR 20 to 30 for the Slovenian economy, but it could represent a considerably higher income (Resolution on National Development Projects for the period 2007-2023, 2006, p. 44).

[5] The irrevocable exchange rate between the Tolar and the Euro is 239,64 Tolars to one Euro. The rate was approved on 11 July 2006 by the Eurozone finance ministers.

Figure 7: Pan-European Corridor V



Source: Corridor Five, 2008.

Railway network in Slovenia

Due to low governmental expenditures for development, maintenance and modernization of railway infrastructure in Slovenia, the latter is every year in worse condition. The national programme for railway infrastructure development from 1995 has been realised only in approximately 25 percents (Pavlin, 2008, p. 8). Therefore it is urgent for Slovenia to modernize railway network and construct the missing sections. Additionally, Slovenian state-owned railroad company Slovenske Železnice (SŽ) generates as much as 80 percent of its revenue with international freight transport services (By rail, sea, road…, 1999, p. 58).

In 2006 the Slovenian Government adopted the Resolution on National Development Projects for 2007-2023: A modernization of the rail network takes place on both Corridors (V and X). The modernized railway network will consequently relieve the road networks, and in the long term reduce noise, pollution and harmful emission levels. Slovenia will thus be able to reduce the burden on the environment in accordance with the Kyoto Protocol, and improve the quality of the environment (Resolution on National Development Projects for the period 2007-2023, 2006, pp. 42-45).

The most questionable bottleneck on the Corridor V through Slovenia represents the rail section Koper-Divača. Due to increasing throughput of port of Koper, for some years this section can not transport the adequate amount of goods, which are mostly directed as a transit

towards CEE countries. Therefore, this section urgently needs the second rail track, what has been called Slovenian Government's attention to this fact by many experts since the middle of nineties.

From Trieste via Divača/Koper/Divača to Ljubljana, the Corridor V is part of the TEN-T priority axis no. 6 (railway axis Lyon-Trieste-Divača/Koper/Divača-Ljubljana-Budapest-Ukrainian border). In 2002 contacts have been started between Rete Ferroviaria Italiana (RFI – an Italian owner of Italy's railway network) and the Friuli-Venice Giulia Region (Italian region, where Trieste represents the chief town), aimed to develop the preliminary project of the railway line between Trieste and Koper, using structural funds provided under the INTERREG III Programme (Pan-Eurostar, Final Report, 2005, p. 97). According to the deposition of dr. Verlič form the Ministry of Transport of Slovenia, the negotiations with Italy for the juncture of the railway link Trieste-Koper are still in process, but it is very likely this will be in Črni Kal (Slovenia). Primarily it has been planned to connect ports of Trieste and Koper with a direct line, but finally the Corridor V is of a greater importance and additionally the rail lines Trieste-Divača and Koper-Divača with the operational speed of 160 kilometres per hour will have the same efficiency and benefits. The cross-border link is expected to be completed by 2015 (Pavlin, 2008, p. 8).

Slovenian railway network is covered by 73% of single-track lines, and 27% of dual-track lines, which are in the majority placed on the fifth Corridor (See Appendix 4). Corridors V and X on Slovenian territory still need a further construction of a second railway tracks. Besides the section Koper-Divača, there are sections of the Corridor X, Jesenice-Ljubljana and Maribor-Šentilj, which need additional second track. A new line between Murska Sobota and the Slovenian/Hungarian border, with Hodoš as a common border station, has been completed and is operating since 2001. Additionally, it is planned to electrify the route between Pragersko (near Slovenska Bistrica)-Hodoš until 2023 (Slovenske Železnice, 2008).

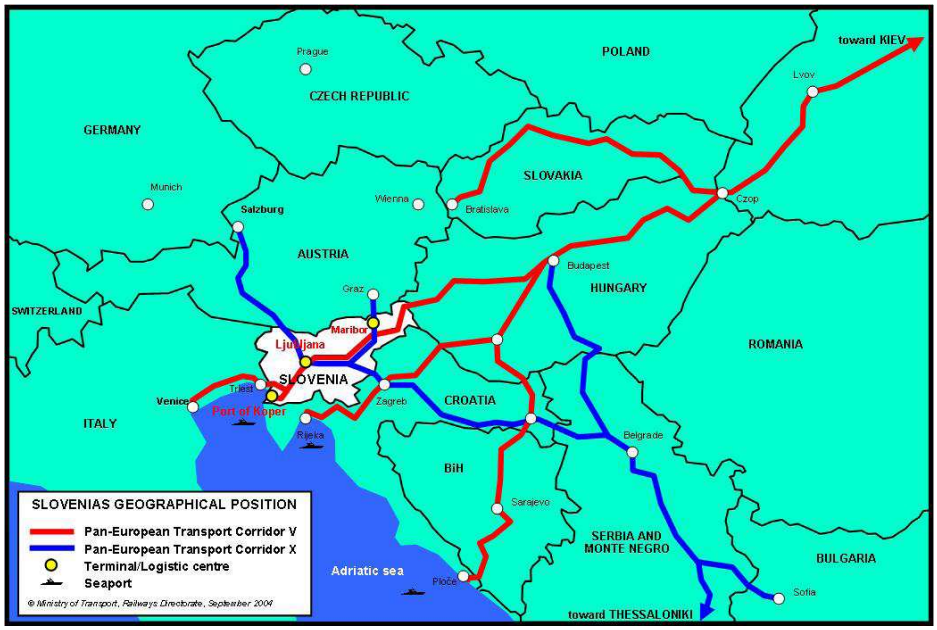
Roads and road transport in Slovenia

The road infrastructure in Slovenia is different between motorways, state roads and local roads. Motorways are managed by a joint-stock Motorway Company in the Republic of Slovenia, DARS d.d. (Družba za avtoceste v RS). DARS is in charge of financial engineering, preparing, organising and managing construction and maintenance of the motorway network as an investor on behalf of the State (Annual report DARS, 2005, p.10). State roads are managed by the Road Directorate of the RS, or, abbreviated DRSC and local roads which are managed by municipalities. The Corridor V consists of total length of 346 km of roads within Slovenia. The motorway network in Slovenia (situation 2006) can be seen in Appendix 5.

In the last 15 year Slovenia has been highly emphasizing the expansion of the motorway network. In the decade from 1995 to 2005 the motorway network has been enlarged for 94%,

from 293 km in 1995 to 569 km in 2005. The largest share of the roads has been opened for the traffic between 2004 and 2005 (SURS database, 2008). Therefore, the road accessibility and motorway network in Slovenia is already high. The reason for that are also very high governmental investments in road and motorway infrastructure in comparison with other modes of transport (see Figure 9, on p. 35).

Figure 8: Pan-European Corridors V and X through Slovenia



Source: Republic of Slovenia, Ministry of Transport. Intermodal Transport in the Republic of Slovenia, Preset state, opportunities and challenges, 2008.

4.2.2 Corridor X

The Corridor X is the most recent of the Pan-European Transport Corridors. The Main Axis (Salzburg–Ljubljana–Zagreb–Beograd–Niš–Skopje–Veles–Thessaloniki), with a length of about 2.500 km, links Central Europe with Southern Eastern Europe. There are additional four branches attached to the Corridor X: Branch A (Graz – Maribor – Zagreb), Branch B (Budapest – Beograd), Branch C (Niš – Sofia) and Branch D (Veles – Florina). The section of the Corridor X that leads through Slovenia includes 239 km of roads and 194 km of railways through the Main Axis and the Branch A.

Like the Corridor V, also the rail network along the Corridor X requires its modernization and additional construction. The Slovenian railway alignment on the Corridor X is covered by 65,6% of double tracks. The only section without dual-track lines is between Ljubljana and Jesenice. It has been decided that the second track will be installed through the airport Jože Pučnik (Brnik, Slovenia), which will enable further development of the airport (Pavlin, 2008,

p. 8). This construction is planned to be finished until 2020, as it is planned to enable operational speed of at least 160 km/h through the whole alignment of Corridors V and X.

Regarding road connections on the Corridor X, in 2008, a lot of important motorway sections were opened for the traffic, which enable smoother traffic flow: the tunnel in Šentvid and the sections: Brezje–Vrba (10 km), Lešnica–Kronovo (5,5 km). However, there are still two bottlenecks: Trebnje–Mirna Peč (15 km) and Podtabor–Brezje (3 km).

4.2.3 The precedence of railways over motorways

EU is striving for the shift of transport modes from roads to railways. The rapid investment in modernization and development of railway infrastructure on Pan-European Corridors is doubtlessly legitimate due to considerably lower side effects of railway traffic than road traffic on the environment. The railway transport has the following ecological, spatial and energetic advantages over road transport (Ministry of Transport of RS, 2007):

- 32% of the used energy sources are used up for the traffic as a whole; where
  - Road traffic use 82,4%,
  - Rail traffic use 2,4%,
  - Air traffic use 13,6%,
  - Maritime traffic use 1,6%.

- 44% of all emissions are caused by the traffic as a whole, where
  - Road traffic causes 83,7%,
  - Rail traffic causes 0,8%,
  - Air traffic 13,8%,
  - Maritime traffic 1,7%.

- The specific energy consumption (energy consumption per done labour unit) is on the rail:
  - By passenger transport 3,5-times lower than by road transport.
  - By freight transport 8,7-times lower than by road transport.

- The safety by railway transport is in average 24-times higher than by road transport.

- By the same freight basic capacity, the space use for railways is 2 to 3-times lower than for motorways.

4.3 Funding of the Pan-European Corridors

So called priority projects of the Pan-European Corridors, among which is also the priority project number 6 from Lyon to Ukrainian border (Corridor V), need to make application for the European funds. The investment for the Main Axis of the Corridor V according to the railway infrastructure is estimated at EUR 39.000 million, where the major share still needs to be invested. The European Commission offers the 20% financing among 30 priority projects on the Corridor V. Additionally, the European Central Bank (ECB) offers the financing of the 70% of project value. The remaining 10% is to be provided by the state. The deadline of European funds availing for the Corridor V is the year 2015 (Ručna, 2006).

All necessary projects for modernization and development of the rail network through both Corridors in Slovenia are worth an estimated EUR 8.884 million. Costs for the rail section Divača–Koper is estimated at EUR 869,6 million. According to the deposition of the former Slovenian minister for transport, Marko Pavliha, the Government of Slovenia acts very irresponsible by the process of acquisition for European funds. Slovenia gained EUR 5,47 millions of European fund, but until the end of the year 2006 it didn't spend anything, although the deadline for expenditure of those sources has already been prolonged once before. The Government of Slovenia also didn't devote any funds for the construction of the railways section Koper-Divača, what is evident from adopted State budgets for 2006 and 2007. In the case that Slovenia won't be able to devote sufficient amount of funds, there is a tread of the competitive section through Tervisio (Italy), Villach (Austria) to Graz (Austria), which would evade Slovenian territory. Austria is firmly endeavouring to gain European funds for this competitive track. Moreover, Austrian financial plan until the year 2020 already comprises this project, which means that the parallel, competitive line to the Corridor V is expected to be realised three years before Slovenian project of development and modernization of the Corridor V. Therefore, the freight transport through Slovenia is highly jeopardized (Ručna, 2007).

Complementary investment in regional links and urban transport is required to improve local market access and foster the growth of a modern service economy. Such investment should thus be also supported by the EU and the international financial institutions (IFIs). The most common investment sources for development activities of the Pan-European Transport Corridors are as follows (Pan-Eurostar, Final Report, 2005, pp. 15-16):

- National funds/budgets
- EU funds/grants
    - TEN-T budget for projects within EU member states (MS)
    - ERDF (European Regional Development Fund) for projects within MS
    - The Cohesion Fund for projects within EU MS

    - INTERREG III (Community initiative which aims to stimulate interregional cooperation in the EU)
    - ISPA (instrument for structural policies for pre-accession, especially large-scale environment and transport investment support)
    - Phare (instrument for structural policies for pre-accession, especially for institution building measures as well as measures designed to promote economic and social cohesion)
    - CARDS (Community Assistance for Reconstruction, Development and Stabilisation)
    - TACIS (a programme of technical assistance that supports the process of transition to market economies)
- EIB (European Investment Bank)
- EBRD (European Bank for Reconstruction and Development)
- World Bank
- IFIs (International Financial Institutions)
- PPP (Public Private Partnership)

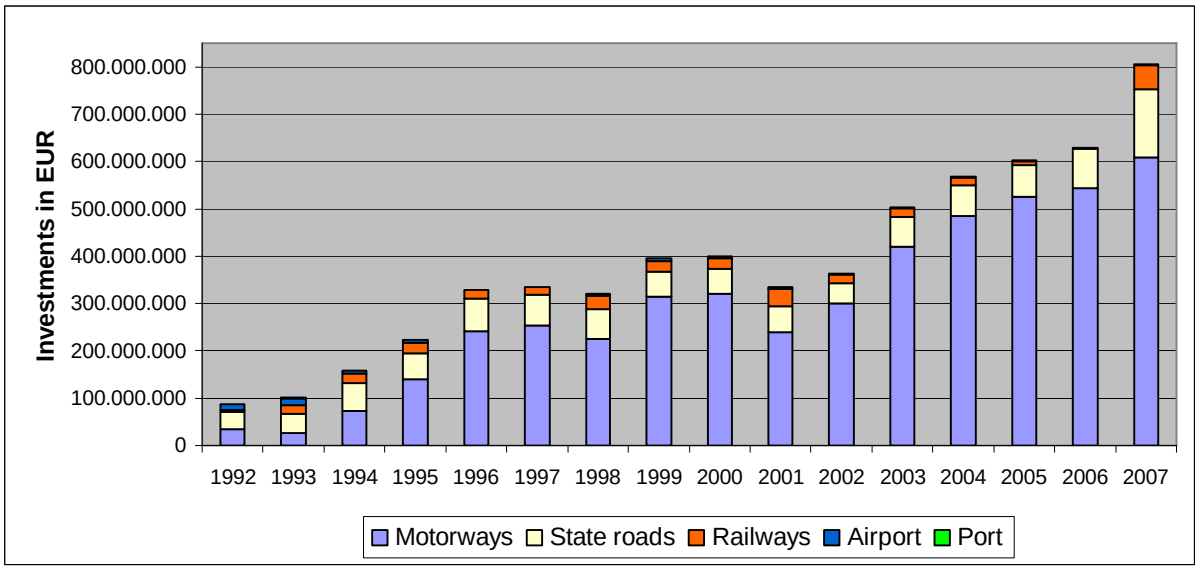
The total cost of TEN-T project until 2020 is estimated to EUR 600 billion. Until December 2006, EUR 124,6 billion has been invested in the approved priority projects of TEN-T, but in order to accomplish remaining investment it is still required an estimated EUR 270 billion. European Commission has adopted the resolution to invest ca EUR 330 billion in the period 2007-2013 (European Commission's official web page, 2008).

The TEN-T financing programme for the period 2007-2013 includes (Momot, 2008):

- National funding: EUR 196 billion (ca EUR 28 billion/year)
- TEN-T budget: EUR 8 billion for studies, grants, instruments
- EIB: EUR 52,5 billion in loans embarked for TEN-T projects
- Structural/Cohesion Funds: EUR 44 billion for TEN-T

For more than a decade, Slovenia is investing the majority of its increasing transport infrastructure investments in the road network, especially in the Corridors V and X. Hence, the railway infrastructure has been investment-discriminated, what increased its uncompetitive position comparing roads and endangered the sustainability of the whole transport system. By doing so, the whole transport infrastructure is withdrawing from the long-term objectives written in the "Resolution on National Development Projects for the period 2007-2023".

Figure 9: Governmental investments in individual transport infrastructure in Slovenia for the period 1992-2007 (in EUR)



* The costs of infrastructure maintenance are excluded from presented investments.

Source: Annual reports 2002-2007, DARS d.d.; Zaključni računi proračuna RS 1992 – 2007, Ministry of Finance 2008, Republic of Slovenia; Plevnik, A. (2008). Obseg vlaganj v prometno infrastrukturo in deleži vlaganj v posamezne prometne podsisteme; Own presentation. (Detailed information: See Appendix 6).

To maintain the strong position of rail in Slovenian freight transport, completion of the hinterland connections through the TEN-T projects is judged positively. There are several factors that influence the settings of transport investment priorities. The context for identifying strategic investment priorities is set by so called Community Strategic Guidelines for cohesion policy to "*give effect to the priorities of the community with a view to promote balanced, harmonious and sustainable development*"[6] (see Appendix 9). In addition to these strategic guidelines a number of other factors shape the eventual establishment of transport investment priorities, such as: cost-effectiveness of projects, availability of other source of funding, appropriateness of transport policy and administrative capacity to adequately absorb and manage funds (Country report Slovenia, 2006, pp. 42-46).

From the Table 7 (on p. 36) it is evident that Slovenia can obtain EUR 1.020 million for its priority axis no. 6, which were allocated for TEN-T priority projects for the period 2007-2013. Out of total, 44% has been allocated for the rail and multimodal transport. Despite having very critical conditions of Slovenian railway connections, it can be observed that some European countries allocate a greater share of those funds in rail and multimodal transport, although they already have a much better railway infrastructure (for example Spain with 50% and Italy with 51%). However, Slovenia should be aware, that solely by using structural and cohesion funds, it is possible to finance approximately a half of the total costs for Divača – Koper railway section.

[6] COM (2004) 492 final, Article 23

Table 7: Structural/Cohesion Funds allocated to TEN-T Priority Projects for the period 2007-2013 in EUR million

Country	AT	BE	BG	CZ	DE	ES	FI	FR
Rail (R)	3	0	464	2.595	795	3.576	10	321
Multimodal (M)	1	20	179	27	0	204	12	249
Transport Total	8	58	1.982	7.716	3.193	7.514	36	1.131
R+M out of Total	49%	35%	32%	34%	25%	50%	60%	50%
Country	**GR**	**HU**	**IRL**	**IT**	**LT**	**LV**	**MT**	**NL**
Rail (R)	811	1.657	6	1.840	558	256	0	1
Multimodal (M)	170	161	0	256	64	0	3	10
Transport Total	6.058	7.193	43	4.106	1.571	1.173	188	56
R+M out of Total	16%	25%	15%	51%	40%	22%	1%	19%
Country	**PL**	**PT**	**RO**	**SK**	**SLO**	**SV**	**UK**	**TOTAL**
Rail (R)	4.722	1.379	1.718	1.165	450	11	61	**22.474**
Multimodal (M)	177	32	13	103	4	15	98	2.005
Transport Total	25.030	2.814	5.330	3.467	1.020	77	368	**81.992**
R+M out of Total	20%	50%	32%	37%	44%	34%	43%	30%

Source: Momot, (2008). Financing the European infrastructure TEN-T (Power point presentation). Brussels: European Commission, p.10.

4.4 Luka Koper and its link to other modes of transport

Luka Koper, as a gateway to Central Europe, represents an important indicator of a hastened traffic increase in Slovenia. A transport flow of goods between Luka Koper and Central Europe is conveyed through two modes of transport: railway and road, since no inland waterway exists in Slovenia. As it is evident from the Table 9 (on p. 37), in 1991 railway use to be a dominant mode of transport by distribution of goods through Luka Koper with the 75% of all transported freight. Since then, the throughput in Luka Koper increased three times until 2006 and its transport mode distribution changed significantly. In 2006, the road transport already passed out the railway transport of Luka Koper's throughput with 53% and 47% respectively. The railway network hasn't gained many additional tracks since 1991. Furthermore, due to low investments in railway infrastructure, the railway network has even shortened since 2005 (see Table 8). For the same reason, trains need to operate at reduced speed owing to the transport safety. On the other side, results of high investments in road infrastructure turn out in increasing trend of the length of state roads and motorways.

Table 8: The length of individual transport infrastructure in kilometres

Transport infrastructure	2000	2001	2002	2003	2004	2005	2006	Index 06/00
State roads	5770,1	5878,9	5899,3	5913,7	5930,2	5983,1	6035,3	104,60
Motorways	369,0	373,0	394,2	417,1	422,8	494,9	504,5	136,72
Railway lines	1228,6	1228,6	1228,6	1228,7	1228,7	1228,1	1228,1	99,96

Source: SURS database, 2008; Own presentation.

The priority axis of the Corridor V is for Luka Koper of a high importance. A new high-speed European railway between Koper–Ljubljana–Celje–Maribor–Murska Sobota–Lendava will signify barriers removal on its way to increase its throughput and increase the gravity as an

important gateway to Central Europe. This important acquisition would also represent a great precedence of all other northern Adriatic ports such as Trieste and Rijeka.

Table 9: The maritime throughput of Luka Koper, distribution of this throughput to railway and roads and the model of emissions (external costs) according to the mode of transport in the period 1991-2006

Year	Throughput	Rail. Trans.	Road Trans.	Rail. share	Road share	Emiss.rail.	Emiss.road
1991	4.340.905	3.272.608	1.068.297	75,39%	24,61%	3,3	32,1
1992	4.764.016	3.583.016	1.181.000	75,21%	24,79%	3,6	35,4
1993	5.122.452	3.099.596	2.022.856	60,51%	39,49%	3,1	60,6
1994	5.343.679	3.499.575	1.844.104	65,49%	34,51%	3,5	55,2
1995	6.712.525	4.914.240	1.798.285	73,21%	26,79%	4,9	54,0
1996	6.542.505	3.946.439	2.596.066	60,32%	39,68%	3,9	78,0
1997	7.269.172	4.712.604	2.556.568	64,83%	35,17%	4,4	71,1
1998	8.608.072	4.704.311	3.903.761	54,65%	45,35%	4,7	117,0
1999	8.337.021	4.945.521	3.391.500	59,32%	40,68%	4,9	101,7
2000	9.321.832	4.973.197	4.348.635	53,35%	46,65%	5,0	130,5
2001	9.110.358	4.772.917	4.337.441	52,39%	47,61%	4,9	133,5
2002	9.246.024	5.842.563	3.403.461	63,19%	36,81%	6,0	104,1
2003	10.720.458	6.227.514	4.492.944	58,09%	41,91%	6,4	138,6
2004	11.986.407	6.260.500	5.725.907	52,23%	47,77%	6,5	177,6
2005	12.540.102	6.893.294	5.646.808	54,97%	45,03%	7,2	176,4
2006	15.390.732	7.201.324	8.189.408	46,79%	53,21%	6,5	223,5

Legend:

- The unit for the maritime throughput and railway/road transport is tons.
- Emissions for railway and road transport are expressed in 1000 tons CO_2e (Carbon Dioxide Equivalent).

Source: EUROSTAT database, (2008). SURS database, (2008). CIPRA Slovenija, (2007). Slovenija na poti k tranjostnemu prometu?, p. 55.

4.5 External costs caused by traffic

"*The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on climate change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions*" (Kyoto Protocol, 2008).

Countries that ratified the Kyoto Protocol, among which is also Slovenia, committed to reduce their emissions of GHG[7]. The amount of emissions of GHG is measured in the universal unit CO_2e (Carbon Dioxide Equivalent). By 2008-2012, Slovenia is obliged to cut its national GHG emissions to 8%, below the levels in a base year 1986. One of the major shares of GHG emissions in Slovenia is caused by traffic (23% in 2006), where a great majority (over 90%) is caused by the road traffic. Therefore, Slovenia will need to take some severe measures to improve the current situation (Plevnik, 2008). By dealing with this problem so far, Slovenia turned up to be a flexible-limited member state, which attained quite

[7] The major six greenhouse gases (GHG), which are the subject of the Kyoto Protocol are: Carbon dioxide (CO_2), Sulfur hexafluoride (SF_6), Methane (CH_4), Nitrous oxide (N_2O), Haloalkane (HFC), Perfluorocarbons (PFCs).

negative results in spite of the White paper liability until 2010 to reduce traffic-related GHG emission.

In the Table 9 (on p. 37) are also presented GHG emissions caused by the railway and road transport to/from Luka Koper. It is obvious that the majority of GHG emissions are cause by the road transport, which rose for almost 700% in the period 1991-2006. Emissions caused by the rail transport are by far lower. Therefore, it seems to be necessary for Slovenia to transpose the way of freight transport from roads to railways. However, the railways already exploit all their capacities, especially on the single track line between Koper and Divača. Without the modernization and new railway construction will not be possible to reduce the road freight transport, which means, that it won't be possible for Slovenia to achieve its obligations of GHG emissions reduction which are caused by transport.

Another formation of external costs of freight road transport is also road infrastructure destruction. Therefore, motorway and road infrastructure need to be sanitised, almost exclusively due to the freight road transport. In Slovenia, sanitations are financed by the road toll incomes of the company DARS and by the national public budget.

4.6 The influence of transport sector on Slovenian economy – empirical evidence

The enlargement of the EU with the accession of ten new member states, as well as the strengthening of the cohesion policy using dedicated EU financial resources are a demonstration that the regional disparities within Europe have been reduced. Therefore, the improvement of the transport systems has been one of the key factors for the growth of the GDPs of the new EU Member States (Koražija, 2000, p. 26).

In order to estimate transport sector determinants which may have an influence on Slovenian economy, I employ the multiple regression model by the use of SPSS software. My principal objective was to analyse which of the selected determinants has the greatest impact on Slovenian economy. Another objective was also to focus on the maritime sector, where I assume it has a great impact on Slovenian economy. Due to comparison reasons among variables all determinants are calculated as a percentage change what concerns the previous year.

In order to analyse the contribution of transport sector to Slovenian economy, I used the variable "gross value added by transport, storage and communications in gross domestic product (GDP)". Independent variables used in the model can be classified by the following categories:

1. Traffic related factors (Maritime, road and railway freight transport)
2. Macroeconomic factors (Investments in specific transport-mode infrastructure with one and two years delay, because of investments' long-term effects; External trade)

The first multiple regression model as the input for the stepwise section can be written as:
$Eur\_GVA\_TSC\_GDP_t=\alpha_t+\beta_1 km\_motorw+\beta_2 km\_railw+\beta_3 tons\_Marit+\beta_4 tons\_Road+\beta_5 tons\_Rail+\beta_6 eur\_Port\_t+\beta_7 eur\_Port\_t1+\beta_8 eur\_Port\_t2+\beta_9+eur\_Mot\_t+\beta_{10} eur\_Mot\_t1+\beta_{11} eur\_Mot\_t2+\beta_{12} eur\_Sr\_t+\beta_{13} eur\_Sr\_t1+\beta_{14} eur\_Sr\_t2+\beta_{15} eur\_Rail\_t+\beta_{16} eur\_Rail\_t1+\beta_{17} eur\_Rail\_t2+\beta_{18} eur\_EX+\beta_{19} eur\_IM$; t=1996, 1997,…, 2006

The selected multiple regression model can be written as:
$Eur\_GVA\_TSC\_GDP_t=\alpha_t+\beta_1 tons\_Marit+\beta_2 eur\_Port\_t+\beta_3 eur\_Port\_t1+\beta_3 eur\_Port\_t2$; t=1996, 1997,…, 2006

Where:

- km_motorw = Length of motorways in kilometres
- km_railw = Length of railway lines in kilometres
- eur_GVA_TSC_GDP = Gross value added by "transport, storage and communications" in gross domestic product (in EUR)
- tons_Marit = Maritime throughput in tons
- tons_Road = Road freight transport in tons
- tons_Rail = Railway freight transport in tons
- eur_Port_t; eur_Port_t1; eur_Port_t2 = Governmental investments (in EUR) in port infrastructure in the year t (t1 – one year delay; t2 – two years delay)
- eur_Mot_t; eur_Mot_t1; eur_Port_t2 = Governmental investments (in EUR) in motorway infrastructure in the year t (t1 – one year delay; t2 – two years delay)
- eur_Sr_t; eur_Sr_t1; eur_Sr_t2 = Governmental investments (in EUR) in state roads infrastructure in the year t (t1 – one year delay; t2 – two years delay)
- eur_Rail_t; eur_Rail_t1; eur_Rail_t2 = Governmental investments (in EUR) in railway infrastructure in the year t (t1 – one year delay; t2 – two years delay)
- eur_EX = External trade: Export (in EUR)
- eur_IM = External trade: Import (in EUR)

Table 10: Data for Multiple Regression Model

eur_GVA_TSC_GDP	tons_Marit	tons_Road	tons_Rail	eur_Port_t	eur_Port_t1	eur_Port_t2	eur_Mot_t	eur_Mot_t1	eur_Mot_t2	eur_Sr_t	eur_Sr_t1	eur_Sr_t2	eur_Rail_t	eur_Rail_t1	eur_Rail_t2	eur_EX	eur_IM
0,16	-0,03	0,05	-0,12	0,34	-0,35	-0,87	0,74	0,93	1,70	0,26	-0,08	0,47	-0,23	0,14	0,16	0,03	0,03
0,19	0,11	0,02	0,09	-0,93	0,34	-0,35	0,04	0,74	0,93	-0,05	0,26	-0,08	-0,05	-0,23	0,14	0,12	0,10
0,11	0,18	0,05	0,00	0,34	-0,93	0,34	-0,11	0,04	0,74	-0,02	-0,05	0,26	0,68	-0,05	-0,23	0,09	0,09
0,11	-0,03	0,03	-0,01	-0,16	0,34	-0,93	0,40	-0,11	0,04	-0,17	-0,02	-0,05	-0,24	0,68	-0,05	0,00	0,05
0,11	0,12	0,03	0,06	-0,12	-0,16	0,34	0,02	0,40	-0,11	-0,02	-0,17	-0,02	0,01	-0,24	0,68	0,18	0,16
0,07	-0,02	0,00	-0,01	-0,61	-0,12	-0,16	-0,25	0,02	0,40	0,02	-0,02	-0,17	0,76	0,01	-0,24	0,09	0,03
0,09	0,01	0,09	0,10	-0,37	-0,61	-0,12	0,25	-0,25	0,02	-0,18	0,02	-0,02	-0,51	0,76	0,01	0,06	0,02
0,12	0,16	0,09	-0,03	-0,56	-0,37	-0,61	0,40	0,25	-0,25	0,42	-0,18	0,02	0,03	-0,51	0,76	0,03	0,06
0,15	0,12	0,07	0,02	-0,19	-0,56	-0,37	0,15	0,40	0,25	0,07	0,42	-0,18	-0,20	0,03	-0,51	0,13	0,16
0,07	0,05	0,12	0,01	0,05	-0,19	-0,56	0,08	0,15	0,40	0,01	0,07	0,42	-0,38	-0,20	0,03	0,13	0,12
0,10	0,23	0,05	0,04	0,07	0,05	-0,19	0,58	0,08	0,15	0,26	0,01	0,07	-0,82	-0,38	-0,20	0,16	0,16

Source: Annual reports 1995-2006, DARS d.d.; Zaključni računi proračuna RS 1995-2006, Ministry of Finance 2008, Republic of Slovenia; Plevnik, A. (2008). Obseg vlaganj v prometno infrastrukturo in deleži vlaganj v posamezne prometne podsisteme.; SURS (2008). External trade - Exports and Imports of Goods, Transport – Road trnansport, Railway transport, Maritime transport. Own calculations.

To select the best set of predictor variables into regression equation, I applied the stepwise method. This method enables to find the most significant independent variable and additionally ensures that the model ends up with the smallest possible set of predictor variables included. Detailed results of the first model are presented in Appendix 7 and of the second model in Appendix 8.

Figure 10: Estimated results of the first model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,804[a]	,646	,607	,023644

a. Predictors: (Constant), eur_Mot_t1

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,009	1	,009	16,434	,003[a]
	Residual	,005	9	,001		
	Total	,014	10			

a. Predictors: (Constant), eur_Mot_t1

b. Dependent Variable: eur_GVA_TSC_GDP

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,098	,009		11,164	,000
	eur_Mot_t1	,085	,021	,804	4,054	,003
a. Dependent Variable: eur_GVA_TSC_GDP						

Source: Own calculations

Results of the stepwise multiple regression model suggest that the most important determinant of the gross value added (GVA) by transport, storage and communications in GDP represent governmental investments in motorway infrastructure with one year delay. R square indicates that about 65% of the variation in the criterion variable eur_GVA_TSC_GDP can be explained by the regression model with one predictor eur_Mot_t1. All other analysed variables were excluded from the model. Note that their observed significance level is too large for entry (p>0,05). Since excluded predictor variables are highly correlated, they add relatively little in prediction when eur_Mot_t1 is in the regression equation.

The regression coefficient, b, indicates that increase of governmental investments in motorway infrastructure with one year delay for 1 percentage point, increases the GVA by transport, storage and communications in GDP for 0,085 %.

Figure 11: *Estimated results of the second model*

Model Summary				
Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate
1	,681[a]	,464	,410	,095030
2	,879[c]	,773	,722	,065202
a. Predictors: tons_Marit				
b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.				
c. Predictors: tons_Marit, eur_Port_t2				

ANOVA[d,e]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,078	1	,078	8,640	,015[a]
	Residual	,090	10	,009		
	Total	,168[b]	11			
2	Regression	,130	2	,065	15,297	,001[c]
	Residual	,038	9	,004		
	Total	,168[b]	11			

a. Predictors: tons_Marit

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Predictors: tons_Marit, eur_Port_t2

d. Dependent Variable: eur_GVA_TSC_GDP

e. Linear Regression through the Origin

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	tons_Marit	,708	,241	,681	2,939	,015
2	tons_Marit	,627	,167	,603	3,760	,004
	eur_Port_t2	-,136	,039	-,561	-3,499	,007

a. Dependent Variable: eur_GVA_TSC_GDP

b. Linear Regression through the Origin

Source: Own calculations.

The assumption of a high contribution of the maritime sector to Slovenian economy is confirmed with the second model. The second stepwise multiple regression model indicates that about 46% of the variation in the criterion variable GVA by transport, storage and communications in GDP can be explained by the regression model with one predictor tons_Marit (Maritime throughput) and that about 77% of the variation in the criterion variable GVA by transport, storage and communications in GDP can be explained by the regression model with two predictors, maritime throughput and governmental investments in port infrastructure with two years delay (eur_Port_t2), both with the very high significance.

The regression coefficient, b_1=0,63 in the second model, explains that in the case that maritime throughput increases for one percentage point and governmental investments with

two years delay stay unchanged, the GVA by transport, storage and communications in GDP increase for 0,63% and b2= -0,14 explains that in the case that governmental investments in port infrastructure increase for one percentage point and the maritime throughput stays unchanged, the GVA by transport, storage and communications in GDP decreases for 0,14%. The latter result should be treated with reserve, since lagged variables often change signs in interaction with other variables. However, since it shows a high significance and since the overall performance of the model is better, it kept in the model.

CONCLUSION

To sum up, I can conclude that northern Adriatic ports have a great potential to achieve a high competitiveness in performative comparison to ports of the North and Baltic Sea, despite their smallness. A propitious geographical position and European transition movements towards the east due to EU enlargement, represent their primal precedence by serving their hinterland, especially countries of the Central and Eastern Europe. By nowadays business world delivery time plays one of the crucial roles. Therefore, northern Adriatic ports keep their unexploited reserves when it comes to the business with the rapidly developing Far East countries.

All three analysed Adriatic ports are facing an increasing trend of maritime throughput for the last couple of year. The same increasing trend appears also in case of traffic with the highest added value, container traffic. According to the linear trend model, I can predict that this trend is going to continue even further. It seems that the ports are aware of their advantages, gravity and further potential. Therefore, they have already declared rather ambitious future development plans.

However, northern Adriatic ports would need to find a way of mutual collaboration in order to compete successfully with the largest European ports. Until now they haven't performed many mutual operations. What it more, most of them were unsuccessful as the case of Luka Koper's management (company TICT) of the seventh pier in Trieste's port. Those superficial abortive trials launched many serious accusations about the responsible culprits which can severely jeopardy further eventual forms of mutual collaborations.

In spite of a great potential of northern Adriatic ports, the letter are still facing with some major weaknesses which are presented in the case of Slovenia with its transport connections through the Pan-European Corridors V and X. The hypothesis about national economic growth due to further maritime sector development has been confirmed. Since all modes of transport are strongly related to maritime sector, it is evident that governmental investments in road infrastructure also have the greatest impact on Slovenian economic growth. However, I prove that railway connections have been investment-discriminated, although they cause

much less external costs than the road transport. Therefore, Slovenia will be forced to distribute national investments into transport infrastructure more reasonably in order to follow adopted Common transport policy.

Bibliography and Sources

1. *A particular guide for EU policy makers – Seaport policy*. (2004). ESPO: European Sea Ports Organisation, Brussels.

2. Amos, J. (2007). Arctic summers ice-free by 2013. *Science report, BBC News*. Found on 14. October 2008 on a web page http://news.bbc.co.uk/2/hi/science/nature/7139797.stm.

3. *Annual Report DARS d.d.*. (2005). Found on 3. November 2008 on a web page http://www.dars.si/doc/pdf/Letno%20poro%C4%8Dilo%202005%20ang.pdf.

4. *Annual Report*. (2007). Koper: Luka Koper. Found on 27. July 2008 on a web page http://www.luka-kp.si/eng/investors/annual-reports.

5. Arh, A. P. (2008). *Luka Koper začenja s podaljševanjem prvega pomola*. STA-Gospodarstvo – Slovenija, 1, p. 1.

6. Autorità Portuale Trieste. (2008). Found on 4. August 2008 on a web page http://www.porto.trieste.it/custom/home.php.

7. Beškovnik, B. (07.04.2008). *Kontejnerski promet se hitro povečuje*. DELO, p. 46.

8. Brady, M. (1998). *Northern Adriatic Ports and Transport Systems.* [Audio copy]. Found on 14. July 2008 on a web page http://www.openstarts.units.it/dspace/handle/10077/1462.

9. Brunet, R. (2002). *Lignes de Force de L'espace Européen*. France: Mappemonde, p. 17.

10. *By rail, sea, road.…* (1999). Slovenian Business Report, Winter 1999. pp. 56-59.

11. Chlomoudis, C. I. & Pallis, A. A. (2002). *European Union Port Policy: the movement towards a long-term strategy*. Athens: Ellinka Grammata S.A..

12. *Corridor Five*. (2008). Permanent Secretariat. Found on 10. September 2008 on a web page http://www.corridor5.org.

13. *Country Report Slovenia. Study on Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion funds for the Programming Period 2007-2013.* (2006). Rotterdam: ECORYS Nederland BV, 86 p. Found on 15. October 2008 on a web page http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/evasltrat_tran/slovenia.pdf.

14. *Direct Investments, 2006*. (2006) Ljubljana: Bank of Slovenia.

15. *Dominating the Adriatic*. (1999). Interview with Bruno Korelič. Slovenian Business Report, Spring 1999. p. 39-40.

16. *European Commission Approves Slovenia's CO_2 Emission Plan*. (2007, 5. February). Republic of Slovenia. Government Communication Office. Found on 26. September 2008 on a web page http://www.ukom.gov.si/eng/slovenia/publications/slovenia-news/4274/4303/.

17. European Commission's official web page. (2008). Found on 16. August 2008 on a web page http://ec.europa.eu/index_en.htm#.

18. EUROSTAT database. (2008). Found on a web page http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136228,0_45572945&_dad=portal&_schema=PORTAL].

19. *Future Maritime Policy for the Union*. (2008). ESPO: European Sea Port Organisation. Found on 12. August 2008 a web page http://www.espo.be/Active_Policy_Issues/Future_Maritime_Policy_for_the_Union.aspx

20. Godec, B. (2008, 5. May). *"Železniški tovorni promet v Sloveniji se bo v petnajstih letih podvojil"*. [Interview]. Finance: Dogodki iz ozadja, 84, p. 4.

21. *Green Paper. (2006). Towards a future Maritime Policy for the Union: A European Vision for the Oceans and Seas* (COM(2006) 275 final). Brussels: Commission of the European Communities.

22. Hafner, A. & Grmek, G. (2004). *Analiza Luke Koper: Po polomiji v Trstu iščejo nove naložbe*. Ljubljana: Finance. Found on 13. August 2008 on a web page http://www.finance.si/103443.

23. Hospers, G. J. (2002). *Beyond the Blue Banana? Structural Change in Europe's Geo-Economy*. Germany: 42nd European Congress of the Regional Science Association.

24. *Intermodal Transport in the Republic of Slovenia; Present state, opportunities and challenges*, Ministry of Transport (2004). Found on 1. October on a web page http://www.internationaltransportforum.org/europe/ecmt/intermodal/pdf/KievPrincic.pdf .

25. Jovanović, N. (2007). *European Union Structural Funds in the context of research*. Metrology institute of the Republic of Slovenia. Found on 4. October 2008 on a web page http://www.mirs.gov.si/fileadmin/um.gov.si/pageuploads/Dokpdf/Dogodki/QualitySEE/Natalija_Jovanovic.pdf.

26. Kajzer, R. (2007, 25. May). *Reka z železnico nad Koper in Trast*. Delo – Gospodarska priloga, p. 10.

27. Koražija, N. (2000, 14. September). *Železnica: Drugi tir pomembnejši od avtocest*. Gospodarski Vestnik: Aktualno, 37, p. 26.

28. Korelic, B., President of Port of Koper. NAPAN, [Comments]. Found on 21. June 2008 on a web page http://www.ts.camcom.it/ENGLISH/NAPAN/cover.htm.

29. *Kyoto Protocol*. (2008). UNFCCC. Found on 12. September 2008 on a web page http://unfccc.int/kyoto_protocol/items/2830.php.

30. Lipnik K. (2007). *Piraje v Tržaškem zalivu*. Finance. Found on 7. August 2008 on a web page http://www.finance.si/193014.

31. Lipnik K. & Sovdat P. (2007). *Tržačani v Kopru, a Koper bo sam*. Finance. Found on 7. August 2008 on a web page http://www.finance.si/193011/Tr%BEa%E8ani_v_Kopru_a_Koper_bo_sam.

32. *Luka Koper se umika s tržaškega sedmega pomola in iz družbe TICT*. (2004). Ljubljana: Finance. Found on 15. August 2008 on a web page http://www.finance.si/101125.

33. Luka Koper's official web page. (2008). Found on a web page http://www.luka-kp.si/eng/.

34. *Maritime transport policy: Improving the competitiveness, safety and security of European shipping*. (2006). Luxemburg: Office for Official Publications of the European Communities. European Commisson.

35. McDonald, F. & Dearden, S. (2005). *European Economic Integration, (4th Edition)*. England: Pearson Education Limited, pp. 267-282.

36. *Ministry of Transport of RS* (2007). Found on 17. September 2008 on a web page http://www.vlada.si/index.php?&cnt=archive-list-cm&lng=eng&typ=ang-15-vse-vse&vie=content&act=gids.

37. *Modernizacija železniškega omrežja.* (2006). Republic of Slovenia. Government Communication Office. Found on 20. August on a web page http://www.slovenijajutri.gov.si/index.php?id=178&no_cache=1&tx_uvireforme_pi1[reforma]=46.

38. Momot, M. (2008). *Financing the European infrastructure – Trans-European Transport Network*. European Commision. Brussels: En-Route to Rails Sustainability Conference 2008. [Power-Point presentation]. Found on 3. September 2008 on a web page http://www.google.si/url?sa=t&source=web&ct=res&cd=7&url=http%3A%2F%2Fwww.eimrail.org%2Fpdf%2Fp_events%2F12%2F12_Milosz%2520Momot_Financing%2520the%2520European%2520Infrastrucutre%2520EIM%2520Conference%2520February%25202008%2520Milosz%2520Momot.ppt&ei=CUjnSP6iE5LO0gXqtMGFCw&usg=AFQjCNEYbJOZ8RI6RrPqW7izc7Nj3u0Yhg&sig2=7VTQDCazP5vIrHoiX1gpdg.

39. Notteboom, T. & Winkelmans, W. (2004). ITMMA. *Factual report on the European port sector (2004-2005)*. Brussels: European Sea Port Organisation (ESPO).

40. *Pan-Eurostar, Final Report*. (2005). Developments and Activities between 1994 and 2003 / Forecast until 2010. HB-Verkehrsconsult. VTT.

41. *Panorama of European Union trade; Data 1999-2006*. Eurostat (2007). Share of Intra-EU-27 trade in total EU-27 trade, by declining Member State, 2006 (%), p. 40.

42. Paoletti, A. (2001). *Infrastructures and ports problems of the North Adriatic Area in the framework of the EU's Eastern Enlargement*. Brussels, 2001. Found on 21. June 2008 on a web page http://www.ts.camcom.it/ENGLISH/NAPAN/cover.htm.

43. Pavlin, C. (2001). *A Trieste pier remote-controlled from Koper*. Slovenian Business Report, Spring 2001. pp. 32-33.

44. Pavlin, C. (2008, 21. January). *Preusmeritev prometa s cest na železnice je lahko tudi samo fraza*. Interview with dr. Verlič Peter (Ministry of Transport). Delo – FT, 1, p. 8.

45. Plevnik, A. (2008). *Emisije toplogrednih plinov iz prometa*. Found on 15. September 2008 on a web page http://kazalci.arso.gov.si/kazalci/index_html?Kaz_id=139&Kaz_naziv=Emisije%20toplogrednih%20plinov%20iz%20prometa&Sku_id=27&Sku_naziv=PROMET&tip_kaz=1#KAZALEC_TOP.

46. *Podpisani izjavi za nadgradnjo železniške proge z Madžarsko in pogodba za Potniški center Ljubljana (2007, 17. October).* Government of Republic of Slovenia. Ministry of Transport. Found on 5. September 2008 on a web page http://www.mzp.gov.si/nc/si/splosno/cns/novica/article/12016/5560/.

47. Port of Rijeka Authority. (2008). Found on 2. August 2008 on a web page http://www.portauthority.hr/english/rijeka/history.shtml.

48. Prijon, M. (2004). *Luka V Trstu pogorela po lastni krivdi*. Ljubljana: Finance. Found on 5. August 2008 on a web page http://www.finance.si/102225/Luka_v_Trstu_pogorela_po_lastni_krivdi.

49. Rakar, R. (2000). *Ljubljana: A "serious rival" of Trieste?* Interview with Federico Pacorini. Slovenian Business Report, Summer 2000. pp. 53-54.

50. *Resolution on National Development Projects for the period 2007-2023*. (2006). Government Office for Growth. Editor: Dr. Andrej Horvat. Ljubljana.

51. Ručna, N. (2004). *Luka se je iz Trsta umaknil zaradi politike*. Ljubljana: Finance. Found on 13. August 2008 on a web page http://www.finance.si/101180.

52. Ručna, N. (2006, 5. October). *Konkurenca pri petem koridorju*. Finance. Found on 13. August 2008 on a web page http://www.finance.si/?MOD=show&id=164683&src=pj051006.

53. Ručna, N. (2007, 15. May). *Grožnja petemu koridorju čez Slovenijo*. Finance. Found on 13. August 2008 on a web page http://www.finance.si/181809.

54. Sea distances. *Voyage calculator*. (2008). Found on 28. August 2008 on a web page http://e-ships.net/dist.htm.

55. *Slovenija na poti k trajnostnemu prometu?* Zbornik prispevkov z mednarodnega posveta. Ljubljana: CIPRA Slovenija, društvo za varstvo Alp. 93 p.

56. *Slovenske Železnice*. (2008). Found on 14. September on a web page http://www.slo-zeleznice.si/en/infrastructure/railway_network/.

57. *SURS database*. (2008). Found on a web page http://www.stat.si/pxweb/Database/Ekonomsko/Ekonomsko.asp.

58. *The European Commission's new Common Transport Policy*. (2008). ERF, European Union Road Federation. Found on 5. November 2008 on a web page http://www.irfnet.eu/en/position-papers/archives/oct-2001/.

59. Trupac, I. & Kolenc, J. (2002). *The Northern Adriatic ports – Joint approach to the European transport market*. Portorož: Faculty of Maritime Studies and Transport.

60. Twrdy, E. (2008, 3. June). Faculty of Maritime Studies and Transport. [A personal interview].

61. Wolfgang, R. & Wolfgang, H. (1998). *Investing in a Common Future Transport Infrastructure in Central and Eastern Europe*. Brussels: CEPS Business Policy Forum.

62. *Zaključni računi proračuna Republike Slovenije 1992 – 2006*. Ministrstvo za finance. Found on 25. September 2008 on a web page http://www.mf.gov.si/slov/proracun/zakljucni_racun.htm.

Appendices

Appendix 1: Abbreviations and explanatory notes

CEECs – Central and east European countries
CEI – Central European Initiative
CMTP – Common Maritime Transport Policy
COMECON – Council for Mutual Economic Assistance (also known as CMEA)
CTP – Common Transport Policy
ECJ – European Court of Justice
ESPO – European Sea Ports Organisation
EU – European Union
GDP – Gross domestic product
GHG – Greenhouse gas
IEE – Institut d'études européennes
ISDEE – Istituto di studi e documentazione sull'Europa comunitaria e l'Europa orientale
NAPAN – Northern Adriatic Ports Area Network
SEM – Single European Market
TEN-T – Trans-European transport network
TEU – Twenty-foot Equivalent Unit
UNCTAD – United Nations Conference on Trade and Development

Appendix 2: Calculations for the maritime throughput trend and forecast

Koper

Total maritime transport throughout of goods 2001 - 2006

	Y=MTT in 1000 tons	t	x	x^2	Yx	Tx=Tt
2001	9119	1	-2,5	6,25	-22797,5	8464,05
2002	9246	2	-1,5	2,25	-13869	9678,56
2003	10720	3	-0,5	0,25	-5360	10893,08
2004	11986	4	0,5	0,25	5993	12107,59
2005	12540	5	1,5	2,25	18810	13322,10
2006	15391	6	2,5	6,25	38477,5	14536,62
2007						
2008						
2009						
Total	69002	-	0	17,5	21254	69002

$Tx=\alpha+\beta x$

$\alpha=11500,33$

$\beta=1214,51$

Trieste

Total maritime transport throughout of goods 1997 - 2006

	Y=MTT in 1000 tons	t	x	x^2	Yx	Tx=Tt
1997	42101	1	-4,5	20,25	-189454,5	40858,11
1998	41592	2	-3,5	12,25	-145572,0	41185,42
1999	36092	3	-2,5	6,25	-90230,0	41512,73
2000	44015	4	-1,5	2,25	-66022,5	41840,04
2001	44712	5	-0,5	0,25	-22356,0	42167,35
2002	43717	6	0,5	0,25	21858,5	42494,65
2003	41566	7	1,5	2,25	62349,0	42821,96
2004	41516	8	2,5	6,25	103790,0	43149,27
2005	43355	9	3,5	12,25	151742,5	43476,58
2006	44644	10	4,5	20,25	200898,0	43803,89
2007						
2008						
2009						
Total	423310	-	0	82,5	27003,0	423310

$$Tx=\alpha+\beta x$$

$$\alpha=42331$$

$$\beta=327,31$$

Rijeka

Total maritime transport throughout of goods 2000 - 2007

	Y=MTT in 1000 tons	t	x	x^2	Yx	Tx=Tt
2000	9214	1	-3,5	12,25	-32249,0	7984,88
2001	10580	2	-2,5	6,25	-26450,0	8665,77
2002	10778	3	-1,5	2,25	-16167,0	9346,66
2003	12433	4	-0,5	0,25	-6216,5	10027,55
2004	13802	5	0,5	0,25	6901,0	10708,45
2005	13849	6	1,5	2,25	20773,5	11389,34
2006	12288	7	2,5	6,25	30720,0	12070,23
2007	14653	8	3,5	12,25	51285,5	12751,125
2008						
2009						
Total	82944	-	0	42	28597,5	82944

$$Tx=\alpha+\beta x$$

$$\alpha=10368$$

$$\beta=680,89$$

Source: EUROSTAT database, 2008; Own presentation and calculations.

Appendix 3: Calculations of time series for Container traffic in individual port with Moving averages

Koper

t=1,2,…, N				t=r,r+1,…, N		
Year_Quarter	**t**	**Yt=TEU**	**Yt-r**	**$_td_{t+1}$**	**S_t**	**$\hat{Y}_{t-i+1}$**
03/I.	1	30131	-	-	-	-
03/II.	2	28665	-	-	-	-
03/III.	3	27242	-	-	-	29107,9
03/IV.	4	28622	-	-	114660	30725,4
04/I.	5	33674	30131	3543	118203	33862,0
04/II.	6	38062	28665	9397	127600	36860,8
04/III.	7	42938	27242	15696	143296	39687,0
04/IV.	8	36916	28622	8294	151590	45222,9
05/I.	9	47990	33674	14316	165906	49385,8
05/II.	10	68033	38062	29971	195877	51194,0
05/III.	11	46270	42938	3332	199209	53607,0
05/IV.	12	48050	36916	11134	210343	52777,9
06/I.	13	56160	47990	8170	218513	51444,6
06/II.	14	53230	68033	-14803	203710	53737,0
06/III.	15	50407	46270	4137	207847	57284,9
06/IV.	16	62252	48050	14202	222049	61878,5
07/I.	17	70341	56160	14181	236230	67901,9
07/II.	18	75798	53230	22568	258798	73919,9
07/III.	19	76026	50407	25619	284417	-
07/IV.	20	84777	62252	22525	306942	-

Trieste

t=1,2,…, N				t=r,r+1,…, N		
Year_Quarter	**t**	**Yt=TEU**	**Yt-r**	**$_td_{t+1}$**	**S_t**	**$\hat{Y}_{t-i+1}$**
03/I.	1	20423	-	-	-	-
03/II.	2	24397	-	-	-	-
03/III.	3	25680	-	-	-	24880,8
03/IV.	4	25247	-	-	95747	28105,8
04/I.	5	27975	30131	7552	103299	32661,6
04/II.	6	42645	108452	18248	121547	36162,1
04/III.	7	43879	27242	18199	139746	39497,4
04/IV.	8	35052	28622	9805	149551	42265,5
05/I.	9	44852	33674	16877	166428	43197,4
05/II.	10	47913	38062	5268	171696	44574,5
05/III.	11	46066	42938	2187	173883	45651,3
05/IV.	12	43882	36916	8830	182713	45878,4
06/I.	13	44636	47990	-216	182497	46539,8
06/II.	14	49946	68033	2033	184530	47995,1
06/III.	15	49324	46270	3258	187788	47907,5
06/IV.	16	52267	48050	8385	196173	43060,5
07/I.	17	35550	56160	-9086	187087	35642,4
07/II.	18	20256	53230	-29690	157397	-
07/III.	19	19669	50407	-29655	127742	-
07/IV.	20	-	-	-	-	-

Rijeka

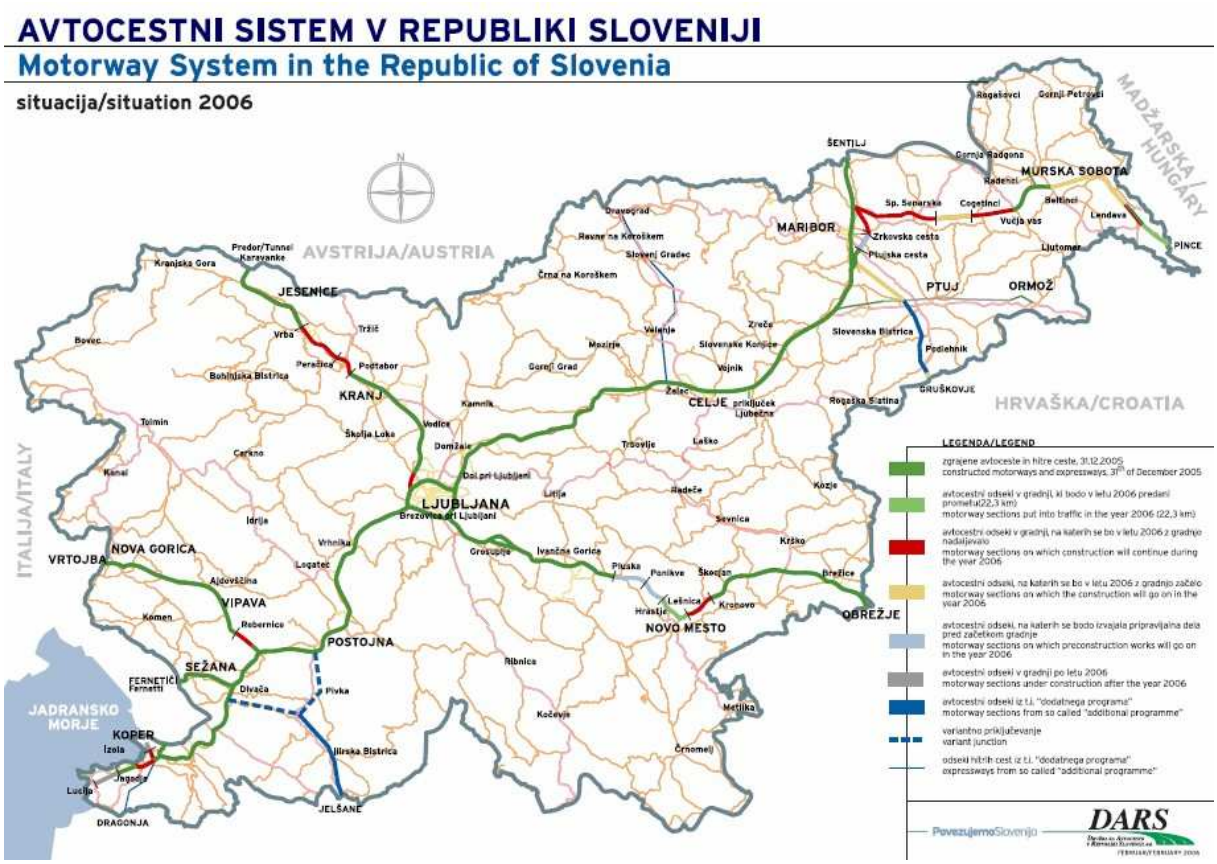
t=1,2,…, N				t=r,r+1,…, N		
Year_Quarter	**t**	**Yt=TEU**	**Yt-r**	**$_td_{t+1}$**	**S_t**	**$\hat{Y}_{t-i+1}$**
05/I.	1	17062	-	-	-	-
05/II.	2	19081	-	-	-	-
05/III.	3	20073	-	-	-	19062,4
05/IV.	4	19853	-	-	76069	19792,3
06/I.	5	17423	17062	361	76430	21041,1
06/II.	6	24559	19081	5478	81908	22597,9
06/III.	7	24586	20073	4513	86421	24967,8
06/IV.	8	27794	19853	7941	94362	28197,5
07/I.	9	28441	17423	11018	105380	32358,0
07/II.	10	39379	24559	14820	120200	35853,1
07/III.	11	43050	24586	18464	138664	-
07/IV.	12	37291	27794	9497	148161	-

Source: EUROSTAT database;, 2008, Own calculations.

Appendix 4: Types of railway tracks in Slovenia

Source: Slovenske Železnice; 2008.

Appendix 5: Motorway System in the Republic of Slovenia (situation 2006)



Source: DARS., 2008.

Appendix 6: Governmental investments in transport infrastructure in Slovenia for the period 1992-2007 (in EUR 1000) and the shares out of total investments for the individual transport subsystems

	Motorways		State roads		Railways		Airport		Port		TOTAL
Year	EUR	%	EUR	%	EUR	%	EUR	%	EUR	%	EUR
1992	34.242	39,0%	35.892	40,9%	5.585	6,4%	11.643	13,3%	400	0,5%	87.762
1993	26.740	26,5%	40.517	40,2%	17.201	17,1%	15.898	15,8%	494	0,5%	100.850
1994	72.105	45,3%	59.509	37,4%	20.013	12,6%	7.370	4,6%	63	0,0%	159.059
1995	139.320	62,3%	54.559	24,4%	22.860	10,2%	6.864	3,1%	41	0,0%	223.643
1996	242.372	73,5%	68.490	20,8%	17.572	5,3%	1.057	0,3%	144	0,0%	329.634
1997	252.595	75,4%	65.122	19,4%	16.723	5,0%	726	0,2%	9	0,0%	335.175
1998	224.509	69,9%	64.004	19,9%	28.055	8,7%	2.291	0,7%	2.208	0,7%	321.067
1999	314.191	79,2%	53.434	13,5%	21.285	5,4%	5.818	1,5%	1.863	0,5%	396.590
2000	321.062	80,3%	52.158	13,0%	21.601	5,4%	3.560	0,9%	1.643	0,4%	400.024
2001	240.183	71,9%	53.147	15,9%	38.102	11,4%	2.011	0,6%	642	0,2%	334.084
2002	299.561	82,5%	43.485	12,0%	18.607	5,1%	956	0,3%	404	0,1%	363.013
2003	420.360	83,7%	61.571	12,3%	19.091	3,8%	1.316	0,3%	179	0,0%	502.518
2004	484.917	85,3%	65.717	11,6%	15.285	2,7%	2.386	0,4%	145	0,0%	568.450
2005	525.562	87,2%	66.431	11,0%	9.454	1,6%	1.138	0,2%	153	0,0%	602.738
2006	542.870	86,3%	84.034	13,4%	1.699	0,3%	713	0,1%	9	0,0%	629.325
2007	609.511	75,7%	142.188	17,7%	52.478	6,5%	679	0,1%	175	0,0%	805.032

Source: Annual reports 2002-2007, DARS d.d.; Zaključni računi proračuna RS 1992 – 2007, Ministry of Finance 2008, Republic of Slovenia; Plevnik, A. (2008). Obseg vlaganj v prometno infrastrukturo in deleži vlaganj v posamezne prometne podsisteme.

Appendix 7: Results of multiple regression of transport analysis

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT eur_GVA_TSC_GDP
  /METHOD=STEPWISE km_motorw km_railw tons_Marit tons_Road tons_Rail eur_Port_t eur_Port_t1 eur_Port_t2 eur_Mot_t eur_Mot_t1
eur_Mot_t2 eur_Sr_t eur_Sr_t1 eur_Sr_t2 eur_Rail_t eur_Rail_t1 eur_Rail_t2 eur_EX eur_IM.
```

Regression

[DataSet0] G:\Diplomska\18.sept1\df.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	eur_Mot_t1	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: eur_GVA_TSC_GDP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,804[a]	,646	,607	,023644

a. Predictors: (Constant), eur_Mot_t1

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,009	1	,009	16,434	,003[a]
	Residual	,005	9	,001		
	Total	,014	10			

a. Predictors: (Constant), eur_Mot_t1

b. Dependent Variable: eur_GVA_TSC_GDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,098	,009		11,164	,000
	eur_Mot_t1	,085	,021	,804	4,054	,003

a. Dependent Variable: eur_GVA_TSC_GDP

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	km_motorw	-,297[a]	-1,231	,253	-,399	,638
	km_railw	-,217[a]	-1,083	,311	-,357	,959
	tons_Marit	,089[a]	,425	,682	,149	,999
	tons_Road	-,138[a]	-,666	,524	-,229	,974
	tons_Rail	,242[a]	1,177	,273	,384	,890
	eur_Port_t	-,215[a]	-1,095	,306	-,361	1,000
	eur_Port_t1	,052[a]	,245	,812	,086	,977
	eur_Port_t2	-,047[a]	-,217	,833	-,077	,944
	eur_Mot_t	,081[a]	,375	,717	,131	,932
	eur_Mot_t2	-,050[a]	-,176	,864	-,062	,548
	eur_Sr_t	-,187[a]	-,852	,419	-,288	,838
	eur_Sr_t1	,263[a]	1,366	,209	,435	,967
	eur_Sr_t2	-,324[a]	-1,735	,121	-,523	,923
	eur_Rail_t	-,069[a]	-,329	,751	-,115	1,000
	eur_Rail_t1	,250[a]	1,174	,274	,383	,833
	eur_Rail_t2	-,100[a]	-,464	,655	-,162	,934
	eur_EX	-,172[a]	-,845	,423	-,286	,982
	eur_IM	-,051[a]	-,241	,816	-,085	,974

a. Predictors in the Model: (Constant), eur_Mot_t1

b. Dependent Variable: eur_GVA_TSC_GDP

Source: Own calculations

Appendix 8: Result of a second multiple regression model

Regression

[DataSet0] G:\Diplomska\18.sept1\df.sav

Variables Entered/Removed[a,b]

Model	Variables Entered	Variables Removed	Method
1	tons_Marit	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).
2	eur_Port_t2	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: eur_GVA_TSC_GDP

b. Linear Regression through the Origin

Model Summary

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate
1	,681[a]	,464	,410	,095030
2	,879[c]	,773	,722	,065202

a. Predictors: tons_Marit

b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.

c. Predictors: tons_Marit, eur_Port_t2

ANOVA[d,e]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,078	1	,078	8,640	,015[a]
	Residual	,090	10	,009		
	Total	,168[b]	11			
2	Regression	,130	2	,065	15,297	,001[c]
	Residual	,038	9	,004		
	Total	,168[b]	11			

a. Predictors: tons_Marit

b. This total sum of squares is not corrected for the constant because the constant is zero for regression through the origin.

c. Predictors: tons_Marit, eur_Port_t2

d. Dependent Variable: eur_GVA_TSC_GDP

e. Linear Regression through the Origin

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	tons_Marit	,708	,241	,681	2,939	,015
2	tons_Marit	,627	,167	,603	3,760	,004
	eur_Port_t2	-,136	,039	-,561	-3,499	,007

a. Dependent Variable: eur_GVA_TSC_GDP

b. Linear Regression through the Origin

Excluded Variables[c,d]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	eur_Port_t2	-,561[a]	-3,499	,007	-,759	,981
	eur_Port_t	-,336[a]	-1,486	,172	-,444	,935
	eur_Port_t1	-,170[a]	-,619	,551	-,202	,760
2	eur_Port_t	-,184[b]	-1,077	,313	-,356	,855
	eur_Port_t1	-,185[b]	-1,016	,339	-,338	,759

a. Predictors in the Model: tons_Marit

b. Predictors in the Model: tons_Marit, eur_Port_t2

c. Dependent Variable: eur_GVA_TSC_GDP

d. Linear Regression through the Origin

Source: Own calculations.

Appendix 9: Community Strategic Guidelines: Guidelines for action

The Community Strategic Guidelines distinguish the following guidelines for action:

Member States should give priority to **the 30 projects of European interest**, located in Member States and regions eligible under the Convergence objective12. Other TEN projects should be supported where this is a strong case in terms of their contribution to growth and competitiveness. Within this group of projects, cross-border links and those overseen by the specially designated European co-ordinators in the Member States merit special attention. Member States should make use of the co-ordinators as a means of shortening the time that elapses between designation of the planning of the network and the physical construction

Complementary investment in **secondary connections** will also be important in the context of an integrated regional transport and communications strategy covering urban and rural areas, in order to ensure that the regions benefit from the opportunities created by the major networks.

Support for **rail infrastructure** should seek to ensure greater access. Track fees should facilitate access for independent operators. They should also enhance the creation of an EU-wide interoperable network. Compliance and applications of the interoperability and the fitting of ERTMS on board and on track should be part of all projects financed.

Promoting environmentally sustainable **transport networks**. This includes public transport facilities (including park-and-ride infrastructures), mobility plans, ring roads, increasing safety at road junctions, soft traffic (cycle lanes, pedestrian tracks). It also includes actions providing for accessibility to common public transport services for certain target groups (the elderly, disabled persons) and providing distribution networks for alternative vehicle fuels.

In order to guarantee the optimum efficiency of transport infrastructures for promoting regional development, attention should be paid to improving the **connectivity** of landlocked territories to the Trans-European network (TEN-T) (…). In this respect, the development of secondary links, with a focus on intermodality and sustainable transport, should be promoted. In particular, harbours and airports should be connected to their hinterland.

More attention should be paid to developing the "**motorways of the sea"** and to short-sea shipping as a viable alternative to long-distance road and rail transport.

Source: Study on Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion funds for the Programming Period 2007-2013, Country Report Slovenia, final, p. 43.

Appendix 10: The summary in Slovene (Povzetek v slovenščini)

Najpomembnejša severno-jadranska pristanišča kot nov dostop do trgov Centralne Evrope

Uvod

Diplomska naloga z različnih zornih kotov proučuje pomembnost, razvoj in zmogljivosti severno-jadranskih pristanišč – pristanišč Trst, Koper in Reka – kot novo pomembno uvozišče Centralne Evrope. Vsebinsko je razdeljena na štiri poglavja. Prvo poglavje preučuje kratek razvoj transportne politike Evropske Unije in njeno prizadevanje za poenotenje le-te, poleg tega pa nakaže tudi premike najmočnejših gospodarskih središč proti vzhodu, kar naj bi pripomoglo k vedno večji pomembnosti severno-jadranskih pristanišč.

V drugem poglavju je predstavljena podrobna analiza ladijskega blagovnega transporta severno-jadranskih pristanišč. S pomočjo metode linearnega trenda sem napovedal kako se bo njihov pretovor gibal v prihodnjih letih.

V precej kratkem tretjem poglavju sem predstavil nekaj izvršenih oblik sodelovanja severno-jadranskih pristanišč, ki so bila izvedena z namenom boljše konkurenčnosti v primerjavi z največjimi evropskimi pristanišči.

Pretovor in razvoj pristanišč je povsem odvisen od transportne infrastrukture, ki jih povezuje z najpomembnejšimi gospodarskimi središči v zaledju, zato sem se v četrtem poglavju osredotočil na to tematiko. Celotna analiza je zaradi obsežnosti izvedena na primeru pristanišča Koper kot predstavnika edinega slovenskega pristanišča za pretovor težkega blaga. Tako imenovana Pan-evropska koridorja V in X predstavljata glavne transportne vezi severno-jadranskih pristanišč z najpomembnejšimi gospodarskimi središči v zaledju, zatorej sem preučil njihovo trenutno stanje, z njimi povezane eksterne stroške in vire financiranja za transportno infrastrukturo. Nadalje sem preučil obseg in pomembnost transportnega sektorja za slovensko gospodarstvo, kjer sem uporabil metodo multiple regresije. Pri tej analizi sem izpostavil hipotezo, da pomorski transport in njegov razvoj v precejšnji meri prispeva k nacionalni gospodarski rasti.

1 Transportna politika in premiki najmočnejših gospodarskih središč

Z namenom poenotenja ukrepov in zakonov, ki zadevajo mednarodni transport, je Evropska Komisija leta 2001 sprejela skupno transportno politiko (Common Transport Policy; v nadaljevanju CTP). CTP naj bi pripomogla k evropski ekonomski integraciji in spodbudila gospodarsko rast, poleg tega pa naj bi okrepila štiri svoboščine gibanja enotnega notranjega trga EU (Single European Market): prosto gibanje blaga, storitev, ljudi in kapitala.

Zadnja Bela knjiga (White Paper) iz leta 2001 nakazuje dolgoročno strategijo na področju transporta in pokriva obdobje to leta 2010. V njej so zapisani cilji prehoda tovora s cestnega in zračnega prometa na železniški in notranji vodni transport. Bela knjiga vsebuje tudi smernice razvoja trans-evropske mreže TEN-T, ki obsega ceste, železnice, notranji vodni transport, letališča, pristanišče ter prometno-upravljalni sistem in tako medsebojno povezuje pomembna ekonomska območja.

Od podpisa Rimske pogodbe (Treaty of Rome) v letu 1957, ladijski promet dolgo ni bil deležen večje pozornosti pri vzpostavljanju evropskih transportnih politik. To se je zgodilo s pristopom novih članic EU, ki so zaradi dostopa do morja začela pristaniščem dajati vedno večjo vlogo pri blagovnem transportu.

Danes evropska pristanišča stremijo k vzpostavitvi skladne politike Evropske Unije s poudarkom na treh ključnih področjih:

1. Pospeševanje zagotavljanja zadostnih zmogljivosti pristanišč, ustreznih pomorskih dostopnosti ter povezav z zaledjem, ki bi pristaniščem omogočila izvrševati vlogo uvozišč za evropsko notranjo in zunanjo trgovino.

2. Pospešeno zagotavljati konkurenčne in učinkovite storitve pristanišč in transportnih verig.

3. Spodbujati pristanišča k njihovemu odgovornemu ravnanju (npr. samonadzor varnostnih standardov, sodelovanje pristanišč pri spodbujanju pragmatičnih industrijskih projektov).

Nekaj zgoraj navedenih ciljev je vključenih v Zeleni knjigi (Green Paper), ki jo je Evropska Komisija sprejela leta 2006. Leto kasneje pa je bila sprejeta tudi Modra knjiga (Blue Paper), ki predstavlja celostno pomorsko politiko za EU z akcijskim načrtom. Njen namen je uskladiti javne politike, povezane z evropskim in obalnim območjem. Akcijski načrt predvideva 5 ciljev: povečati trajnostno uporabo morij, oblikovati osnovo za pomorsko politiko, ki temelji na znanju in inovacijah, zagotoviti visoko kakovost življenja v obalnih regijah, spodbujati vodstveno vlogo Evrope pri mednarodnih pomorskih zadevah ter povečati prepoznavnost pomorske Evrope.

V Evropi je možno zaznati precej homogen ekonomski pas, ki poteka od Londona skozi Benelux in področje reke Ren proti Milanu. To področje, znano tudi pod imenom »Modra Banana« (Blue Banana; glej Figure 1 na str. 7 v angleški različici), je eno od najbolj gosto naseljenih na svetu in vključuje močno industrijsko koncentracijo. Kljub temu je vse več ekonomskih analitikov mnenja, da že od devetdesetih let dalje Modra banana izgublja svoj dominanten položaj v Evropi. Razlog za to so novi pristopi članic k EU in posledično njeno širjenje proti vzhodu, kar povečuje trgovinske tokove na teh območjih. Iz navedenih dejstev

gre pričakovati povečano privlačnost in pomembnost pristanišč Trsta, Kopra in Reke pri prodiranju na trg Centralne Evrope skozi Jadransko morje.

2 Najpomembnejša severno-jadranska pristanišča in njihove opisne značilnosti

Pomembnost pristanišč izhaja predvsem iz njihove geografske lege. Pristanišča na severno-Jadranskem morju: Trst, Koper in Reka, imajo ugodno geografsko lego za oskrbo svojega zaledja, kot je severna Italija, južna Nemčija, Avstrija, Slovenija, Hrvaška, Madžarska, Češka, Slovaška, južna Poljska in Ukrajina. To zaledje predstavlja območje hitro razvijajočih se gospodarstev.

Vsa tri severno-jadranska pristanišča so med seboj oddaljena manj kot 100 kilometrov. Cestna razdalja med temi pristanišči in Ljubljano ali Dunajem je zanemarljivo majhna – le približno 25 kilometrov, zatorej lahko stranka poljubno izbere katerokoli izmed obravnavanih pristanišč brez pomenljivih razlik. Cestne povezave med severno-jadranskimi pristanišči in centralno-evropskimi državami so od 700 do 800 kilometrov krajše v primerjavi s pristanišči na severu Evrope. Nadalje, pristanišče Said v Sredozemskem morju, ki je neposredno povezano s Sueškim prekopom je približno 2000 navtičnih milj bližje severno-jadranskim pristaniščem kot na primer Rotterdamu (glej Table 1 na str. 8 v angleški različici). Zatorej se skrajša čas plovbe, ker pomeni, da ladja lahko doseže severno-jadranska pristanišče približno pet dni prej kot pristanišče Rotterdam. Posledično so nižji stroški ladijskega transporta, strankam pa je možno ponuditi krajši dobavni rok. Kljub navedenimi prednostim pa severno-jadranska regija trpi tudi nekaj slabosti, ki lahko resno ogrozijo to področje. Seveda naravnih ovir, kot so Alpe, ni mogoče premagati, potrebno pa bi bilo izboljšati transportne povezave, še posebej železniške.

Luka Koper ali pristanišče Koper je edino slovensko pristanišče za pretovor težkega blaga in je eno najmlajših v EU. Glavni dejavnosti tega pristanišča sta pretovor in skladiščenje vseh vrst blaga, dopolnjuje pa ju tudi vrsta dodatnih storitev na enajstih specializiranih terminalih. Luka Koper opravi le 30% vsega poslovanja za domači trg, ostalo pa predstavlja tranzitno dejavnost, večinoma v Avstrijo (26%), Italijo (19%), Madžarsko (8%), Slovaško (5%), Balkanske države (3%), južno Nemčijo (2%) in Češko (1%). Večinski delež Luke Koper je v lasti Republike Slovenije.

Reško pristanišče je največje na Hrvaškem. Leta 1913 se je Reško pristanišče po pretovoru uvrščalo med prvih deset evropskih pristanišč s kar 2,1 milijona ton. Vojna na Hrvaškem v devetdesetih letih je povzročila zaostanek Reškega pristanišča, pretovor pa se je preusmeril proti Trstu in predvsem proti Kopru. Od leta 1996 dalje se je pretovor postopno povečeval in v letu 2007 dosegel pretovor 5 milijonov ton suhega tovora in 7 milijonov ton tekočega tovora.

Tržaško pristanišče razpolaga s 13 specializiranimi terminali, ki so v lasti zasebnih podjetij. Tako kot Koprsko in Reško pristanišče ima tudi Tržaško pristanišče območje prosto carinske cone. Status prosto carinske cone pristaniščem omogoča ugodnejše pogoje za izvajanje pristaniških dejavnosti, kot so na primer prost sprejem blaga ne glede na njegov izvor in ciljnega kraja, opravičenost nalaganja davkov, prispelo blago iz EU v območje prosto carinske cone se lahko kadarkoli natovorijo in izvozijo.

2.1 Ladijski pretovor Tržaškega, Koprskega in Reškega pristanišča

Severno-jadranska pristanišča bi se morala medsebojno povezati in sodelovati z namenom, da bi bila konkurenčna pristaniščem v Severnem morju, kot je na primer Rotterdam. Vsa tri obravnavana pristanišča letno pretovorijo le petino pretovora Rotterdamskega pristanišča (glej Figure 2 na str. 11 v angleški različici). Pristanišča Trst, Koper in Reka so skupno prispevala manj kot 2% celotnega ladijskega pretovora EU25 skupaj z Reko v obdobju med letoma 2004 in 2006 (glej Tabelo 1 spodaj).

Tabela 1: *Primerjava ladijskega pretovora severno-jadranskih pristanišč z največjimi pristanišči Centralne in Zahodne Evrope (v 1000 tonah)*

	2004	2005	2006	%_2004	%_2005	%_2006
EU 25 + Rijeka	3.518.492	3.658.210	3.772.409	100,00%	100,00%	100,00%
Rotterdam (NL)	330.865	345.819	353.576	9,40%	9,45%	9,37%
Antwerpen (BE)	135.511	145.835	151.705	3,85%	3,99%	4,02%
Hamburg (DE)	99.529	108.253	115.529	2,83%	2,96%	3,06%
Gdansk (PL)	22.238	22.478	22.034	0,63%	0,61%	0,58%
Koper (SI)	11.986	12.540	15.391	0,34%	0,34%	0,41%
Trieste (IT)	41.516	43.355	44.644	1,18%	1,19%	1,18%
Rijeka (HR)	13.802	13.849	12.288	0,39%	0,38%	0,33%
Ko+Tr+Ri	*67.304*	*69.744*	*72.323*	*1,91%*	*1,91%*	*1,92%*

Legenda: * Ko+Tr+Ri: Koper, Trst in Reka.

Vir: EUROSTAT, 2008, Lastni izračuni.

V nedavnih preteklih letih so obravnavana severno-jadranska pristanišča uresničevala pozitiven trend ladijskega pretovora. Od leta 2005 do leta 2006 se je ladijski pretovor Luke Koper v povprečju povečal za 22,7%, v Tržaškem pristanišču pa za le 2,9%. Razlog za znatno povečanje pretovora v Kopru je predvsem v povečanem pretovoru kontejnerjev. Reško pristanišče prav tako uresničuje pozitivno rast pretovora, čeprav se je le-ta predvsem zaradi nižjega pretovora tekočega blaga v letu 2006 znižal za 11,3%. Namreč v letu 2007 se je celoten pretovor Reškega pristanišča zopet povečal za 19,2%.

Delež uvoženega blaga severno-jadranskih pristanišč je vsaj dva krat večji kot delež izvoženega blaga. To razmerje v Tržaškega pristanišče je celo 10 proti 1 (približno). Glavni razlog za to gre iskati pri njihovi vlogi uvozišča Centralne Evrope; še posebno je ta vloga izrazita pri pretovoru blaga iz Daljnega Vzhoda. Pristanišči Koper in Reka imata celo podobne letne količine pretovorjenega blaga: v letu 2006 je pristanišče Koper pretovorilo 15 milijonov ton, Reka pa 12 milijonov ton blaga. Rast njunega letnega pretovora se giblje med

680.000 in 1.200.000 tonami blaga. Tržaško pristanišče ima trenutno precej večje zmogljivosti pretovora (45 milijonov ton v letu 2006), vendar ima v primerjavi s Koprskim in Reškim pristaniščem nižjo povprečno letno stopnjo rasti – 330.000 ton letno. Glavni razlog za to so predvsem večje zmogljivosti pretovora tekočega tovora in t.i. Ro-Ro mobilnih enot.

2.2 Napoved prihodnjih ladijski pretovorov z uporabo metode linearnega trenda

Na podlagi preteklih podatkov in z uporabo linearnega trenda sem izračunal prihodnje pretovore pristanišč severnega Jadrana. Njihov skupni pretovor naj bi se povečal s 72 milijonov ton v letu 2006 na 77 milijonov ton v letu 2009. Z uporabo linearnega trenda sem ugotovil, da se bo njihov skupni pretovor povečal do skoraj 100 milijonov ton v letu 2015. Pričakovati je mogoče da bo skupni pretovor celo presegel 100 milijonov ton v letu 2015, saj so severno-jadranska pristanišča napovedala precej velike in optimistične razvojne in širitvene projekte v prihodnjih letih.

Tabela 2: *Napoved prihodnjih ladijskih pretovorov do leta 2015 za posamezno pristanišče v 1000 tonah (1000T)*

Leto	Koper	Trst	Reka
2007	15.751	44.131	n.a.
2008	16.966	44.459	13.432
2009	18.180	44.786	14.113
2015	25.467	46.750	18.198

Legenda: n.a. pomeni, da podatek ni dostopen.

Vir: Lastni izračuni.

2.3 Kontejnerski promet

Še do nedavnega je transport blaga do Balkana potekal klasično skozi severno-morska pristanišča. S tem so bili transportni stroški tudi do 60 odstotkov višji kot bi bili v primeru transporta v kontejnerjih. Višji so tudi stroški pretovora, ki znašajo 0,4 odstotke pri klasični obliki transporta in le 0,07 odstotka pri transportu v kontejnerjih. Nadalje so precej nižji stroški embaliranja in pakiranja, ki se znižajo tudi do 80 odstotkov, odvisno od vrste blaga in načina prevoza. Navedena dejstva so precej pripomogla k razvoju kontejnerskega prometa v Jadranskem morju.

Vsa obravnavana severno-jadranska pristanišča imajo pozitiven trend rasti kontejnerskega pretovora. Najvišje pretovorne zmogljivosti je imelo pristanišče Koper, s 306.942 TEU v letu 2007 ali za 38% višji pretovor kot v letu 2006. Celo višjo rast, 57%, je v letu 2007 doseglo pristanišče Reka. K tako uspešnim rezultatom sta v precejšnji meri prispevala prezasedenost severno-morskih pristanišč in modernizacija pristaniških terminalov.

Pomorski promet med Evropo in državami Daljnega Vzhoda se stalno povečuje. Kontejnerski promet med Daljnim Vzhodom in EU 25 se je v letu 2006 v primerjavi z letom 2005 povečal za 13% in dosegel skoraj 19 milijonov TEU. Blago iz daljnega vzhoda je za EU 25 zelo

pomembno, saj je v letu 2006 v EU 25 prispelo 30% vseh kontejnerjev prav iz teh držav. Čeprav so države Daljnega Vzhoda za severno-jadranska pristanišče ene najpomembnejših trgovalnih partneric, pa je v pristanišča Trst, Koper in Reka skupaj prispelo manj kot 1% vseh kontejnerjev (glej Table 6 na str. 20 v angleški različici).

2.4 Načrti prihodnjega razvoje severno-jadranskih pristanišč

Najpomembnejša pridobitev Luke Koper v prihodnosti bo izgradnja oz. podaljšanje prvega pomola, ki bo še povečalo zmogljivosti pretovora kontejnerjev. Pomembno pa je tudi to, da bo na njem možno privezati trenutno največje kontejnerske ladje, ki imajo nosilnost 8000 TEU. Z izgradnjo še tretjega kontejnerskega pomola bo Luka Koper lahko letno pretovorila 1 milijon TEU kontejnerjev.

Precejšnje modernizacije naj bi bilo do leta 2009 deležno tudi pristanišče Reka s t.i. projektom »Rijeka Gateway project«, ki bo izveden ob sodelovanju hrvaškega parlamenta in Svetovne banke. Poleg modernizacije pristanišče so v ta projekt vključene tudi posodobitve in nove izgradnje cestnih povezav.

3 Sodelovanje severno-jadranskih pristanišč

Mnenja strokovnjakov namigujejo, da bi se lahko pretovor severno-jadranskih pristanišč ob njihovem sodelovanju nekaj-krat povečal. Do sedaj so severno-jadranska pristanišča le redko sodelovala in še v teh primerih precej neuspešno.

K slabem sodelovanju med pristanišči je po eni strani pripomogla izredno slaba transportna infrastruktura, ki povezuje pristanišča med seboj. Po drugi strani obstajajo ovire pri povezovanju zaradi različne strukturne ureditve pristanišč.

Možnosti sodelovanja severno-jadranskih pristanišč so bile obravnavane v sklopu mednarodne konference »EU in med-regijsko sodelovanje: Severno-jadranska pristanišča Trast, Koper in Reka« v Portorožu leta 1998. Tu je bila ustanovljena t.i. mreža NAPAN z namenom mednarodnega gospodarskega sodelovanja med pristanišči in s poudarkom na razvoju transportne infrastrukture. Glavni cilj mreže NAPAN, ki ga podpira tudi EU je, da bi pristanišča Trst, Koper in Reka postala enotni pristaniški sistem, kjer bi se vsako pristanišče specializiralo za določene vrste blaga. Glavni problem pri tem je, da se nobeno pristanišče seveda ne bo odpovedalo blagu z največjo dodano vrednostjo (npr. kontejnerji, avtomobili).

Bolj konkretna oblika sodelovanja med Koprskim in Tržaškim pristaniščem je bila družba TICT (Trieste International Container Terminal). Ta družba je upravljala sedmi pomol v Tržaškem pristanišču, večinski delež (70%) v njej je manj kot tri leta imela Luka Koper. Konec leta 2004 je Luka Koper z veliko izgubo izstopila iz družbe zaradi različnih razlogov. Italijanska stran je za to sklicevala na neugodno italijansko politiko, Luka Koper pa je za to

krivila politiko, ki jo je izvajalo Tržaško pristanišče in negativen odnos Tržačanov do Slovencev.

Kljub neuspešnim poskusom sodelovanja v preteklosti severno-jadranska pristanišča še niso uporabila vseh vzvodov. Ena od najugodnejših oblik sodelovanja je skupni pristop pri njihovi promociji na potencialnih trgih, ki se usmerjajo proti severnemu Jadranu.

4 Severno-jadranska pristanišča kot nov dostop do trgov Centralne Evrope

4.1 Pan-Evropski koridorji

Evropa je zasnovala načrt izgradnje transportnih povezav, ki vključuje cestni, železniški, zračni in vodni promet. Poleg teh transportnih povezav, ki jih prepoznamo pod imenom TEN-T, je bilo ustanovljenih tudi deset Pan-Evropskih koridorjev, ki so od priključitve novih članic k EU v letu 2004 v večini postali del mreže TEN-T. Za severno-jadranska pristanišča sta najpomembnejša koridorja V in X, ki se sekata v Sloveniji.

Glavna trasa V. koridorja poteka od Benetk v Italiji do Kijeva v Ukrajini s približno 3270 kilometrov cest in 2850 kilometrov železniških prog (Benetke – Trst/Koper – Ljubljana – Maribor – Budimpešta – Uzgorod – L'vov – Kijev). S tem V. koridor predstavlja najhitrejšo povezavo med severnim Jadranom in Centralno Evropo.

Koridor X je najbolj nedaven Pan-evropski koridor. Glavna trasa X. koridorja je dolga približno 2500 kilometrov in povezuje Centralno z Jugo-vzhodno Evropo (Salzburg-Ljubljana-Zagreb-Beograd-Niš-Skopje-Veles-Thessaloniki). Na tem koridorju skozi slovensko ozemlje je edini odsek brez dvojnega tira odsek Ljubljana-Jesenice. V razvojnem planu poleg izgradnje drugega tira predvidena trasa skozi letališče Jožeta Pučnika, ki bo omogočila nadaljnji razvoj glavnega slovenskega letališča.

Železniške povezave v Sloveniji

Zaradi zelo nizkih proračunskih izdatkov namenjenih železniški infrastrukturi v Sloveniji je le-ta vsako leto v slabšem stanju. Nacionalni program za razvoj železniške infrastrukture iz leta 1995 je bil realiziran le v približno 25 odstotkih. Zato je za Slovenijo nujno, da modernizira železniško omrežje in izgradi manjkajoče odseke na obeh koridorjih. To je za slovensko državno podjetje »Slovenske Železnice« še toliko bolj pomembno, saj ustvari 80 odstotkov vseh dohodkov z mednarodnim tovornim prometom.

Slovenska vlada je leta 2006 sprejela Resolucijo o nacionalnih razvojnih projektih od 2007 do 2023. S pomočjo tega projekta naj bi se v Sloveniji cestni promet preusmeril na železniškega, na dolgi rok pa naj bi tudi pripomogel k zmanjšanju hrupa in škodljivih emisij v ozračju, kar je v skladu s Kjotskim sporazumom.

Najbolj ozko grlo V. koridorja skozi Slovenijo predstavlja odsek Koper-Divača. Zaradi naraščajočega pretovora Luke Koper ta odsek že nekaj let ne more pretovoriti zadostne količine blaga, ki ga večinoma predstavlja tranzit namenjen v države CEE. Za omogočanje zadostnega pretoka blaga na tem odseku je nujna izgradnja drugega tira, kar so strokovnjaki slovensko vlado opozarjali že od sredine devetdesetih let.

Ceste in cestni transport v Sloveniji

Cestna infrastruktura v Sloveniji se razlikuje med avtocestami, državnimi cestami in lokalnimi cestami. Avtoceste upravlja delniška družba DARS (Družba za avtoceste v RS). Slovenija se je v zadnjih 15 letih predvsem osredotočala na izgradnjo avtocest. V desetletju med 1995 in 2005 se je avtocestno omrežje povečalo za kar 94%. Zaradi tako pospešenega vlaganja v cestno infrastrukturo so bile v Sloveniji železnice popolnoma investicijsko diskriminirane (glej Figure 9 na str. 35 v angleški različici), kar je povzročilo njihovo veliko nekonkurenčnost v primerjavi s cestnim omrežjem.

4.2 Financiranje Pan-evropskih koridorjev

Tako imenovani prednostni projekti, med katere se uvršča tudi koridor V, imajo možnost prejeti evropska denarna sredstva. Investicija za glavno os petega koridorja je ocenjena na 39 milijard evrov, pri čemer je potrebno glavi del tega zneska še investirati. Evropska Komisija ponuja 20% finančnih sredstev namenjenih 30 prednostim projektom na petem koridorju. Poleg tega Evropska Centralna Banka omogoča finančno pomoč tudi do 70% vrednosti projekta. Ostalih 10% morajo države priskrbeti same. Rok za prijavo za evropska finančna sredstva je leto 2015.

Vsi potrebni projekti za modernizacijo in izgradnjo železniškega omrežja na V. in X. koridorju skozi Slovenijo so ocenjeni na 8,884 milijarde evrov. Do sedaj je Slovenija ravnala zelo neodgovorno pri pridobivanju in porabi evropskih finančnih sredstev. Ob pridobitvi 5,47 milijona evrov evropske pomoči ni bilo do leta 2006 porabljenega še nič od tega zneska, čeprav je bil rok za porabo teh sredstev enkrat že podaljšan. Za izgradnjo železniškega odseka Koper-Divača v letih 2006 in 2007 v nacionalnem proračunu ni bilo namenjenega niti evra. Zaradi tako neodgovornega ravnanja petemu koridorju skozi Slovenijo že grozi konkurenčna trasa, ki poteka skozi Trevisio (Italija), Villach (Avstrija) in Graz (Avstrija) in se tako popolnoma izogne slovenskemu teritoriju. Avstrija si močno prizadeva za čim prejšnjo realizacijo tega projekta in pridobitev za to potrebnih finančnih sredstev. S tem so tovorni promet skozi Slovenijo in s tem povezani prihodki močno ogroženi.

4.3 Luka Koper v povezavi z drugimi načini transporta

Trgovinski tok med Luko Koper in centralno-evropskimi državami poteka z uporabo dveh načinov transporta: preko železnice in cestnih povezav. Pri tem je bila železnica v letu 1991 najbolj uporabljan način prevoza, saj se je preko železniških povezav pretovorilo kar 75% vsega tovora (glej Table 9 na str. 37 v angleški različici). Ta delež pa se je v zadnjih petnajstih letih precej spremenil. Leta 2006 se je po železnici prepeljalo le še 53% vsega tovora, medtem, ko je cestni promet bistveno pridobil na uporabnosti. K tem so pripomogla visoka vlaganja v cestno infrastrukturo, kar je omogočilo bistveno izboljšano pokritost in cestno povezanost v državi.

Povečana uporaba cestnega transporta pri prevozu v/iz Luke Koper je povzročila tudi bistveno povečano koncentracijo toplogrednih plinov v ozračju. Le-ta se je med leti 1991 in 2006 povečala za skoraj 700% (glej Table 9 na str. 37 v angleški različici). S podpisom Kjotskega protokola se je Slovenija zavezala k zmanjšanju toplogrednih plinov. K tem bi bistveno pripomogla povečana uporaba železnice v primerjavi s cestnim prevozom, saj je bilo v Sloveniji v letu 2006 23% vseh toplogrednih plinov povzročenih s transportom, pri čemer je veliko večino (čez 90%) predstavljal cestni transport.

4.4 Vpliv transportnega sektorja na slovensko gospodarstvo – empirični dokazi

Z uporabo multiple regresije sem analiziral katera od izbranih transportno-povezanih spremenljivk ima največji vpliv na slovensko gospodarstvo. Pri tem sem se predvsem osredotočil na pomorski sektor, kjer sem postavil hipotezo, da le-ta pomembno vpliva na slovensko gospodarstvo. Zaradi primerjalnih razlogov sem podatke vseh preučevanih spremenljivk preračunal v odstotne spremembe glede na predhodno leto.

Za analizo vpliva transportnega sektorja na gospodarstvo sem uporabil spremenljivko »bruto dodana vrednost prometa, skladiščenja in zvez v bruto domačem proizvodu«. Preučevane neodvisne spremenljivke sem razdelil v dve kategoriji:

1. Prometno povezane spremenljivke (ladijski, cestni in železniški tovorni promet v tonah)
2. Makroekonomsko povezane spremenljivke (investicije v določeno transportno infrastrukturo s eno- in dvo-letnim odlogom zaradi kasnejših vidnih učinkov; zunanja trgovina)

Rezultati analize s prvo multiplo-regresijsko funkcijo so pokazali, da imajo državne investicije v avtocestne povezave z enoletnim odlogom najbolj značilen vpliv na slovensko gospodarstvu. Regresijski koeficient b pri prvi analizi pojasni, da se s povečanjem državnih investicij v avtocestno infrastrukturo z enoletnim odlogom za 1 odstotno točko, bruto dodana vrednost prometa, skladiščenja in zvez v bruto domačem proizvodu poveča za 0,085%. Z

drugo multiplo-regresijsko funkcijo sem potrdil hipotezo o pomembnem prispevku pomorskega sektorja na slovensko gospodarstvo. Spremenljivki »ladijski pretovor« in »državne investicije v pristaniško infrastrukturo« sta pokazali visoko značilnost in s tem pomemben vpliv na slovensko gospodarstvo. Čeprav ima slednja spremenljivka negativen korelacijski koeficient, ki je posledica nihajočih se predznakov pri časovno zamaknjenih spremenljivkah, sem jo obdržal v sami funkciji zaradi bolj optimalnih rezultatov analize.

Sklep

Skozi celotno analizo sem ugotovil, da imajo severno-jadranska pristanišča kljub svoji majhnosti dobre možnosti za dosego visoke konkurenčnosti v primerjavi s pristanišči Severnega in Baltiškega morja. Ugodna geografska lega in širjenje EU proti vzhodu, predstavljata glavni prednosti severno-jadranskih pristanišč pri oskrbovanju njihovega zaledja, predvsem trgov Centralne in Vzhodne Evrope. Danes čim krajši dobavni čas predstavlja eno od ključnih poslovnih prednosti, zatorej imajo severno-jadranska pristanišča še nekaj neizkoriščenih rezerv pri poslovanju s hitro razvijajočimi se državami Daljnega Vzhoda.

Vsa obravnavana severno-jadranska pristanišča so v nedavnih letih uresničevala pozitiven trend ladijskega pretovora. Naraščajoči trend je prisoten tudi pri pretovoru blaga z najvišjo dodano vrednostjo – kontejnerskem pretovoru. Na podlagi metode linearnega trenda sem ugotovil, da se bo pozitiven trend nadaljeval tudi v prihodnosti. Kot kaže se pristanišče zavedajo svojih prednosti, prednosti in prihodnjih ugodnih možnosti, saj so že napovedala precej prizadevne prihodnje razvojne načrte.

Kljub njihovi posamezni uspešnosti bi se po mnenju mnogih strokovnjakov severno-jadranska pristanišča morala medsebojno povezati in sodelovati in s tem uspešno konkurirati pristanišče Severnega morja. Do sedaj nismo bili priča mnogim oblikam sodelovanja. Nadalje, ta sodelovanja so bila neuspešna, kot je na primer oblika sodelovanja v primeru družbe TICT. Takšne neuspešna sodelovanja in resne obtožbe o odgovornosti za to lahko resno ogrozijo nadaljnje sodelovanje.

Kljub vsem ugodnim pogojem za razvoj severno-jadranskih pristanišč, se le-ta srečujejo z nekaj pomembnimi šibkostmi, ki sem jih predstavil na primeru Slovenije in njenimi transportnimi povezavami skozi V. in X. Pan-evropski koridor. S pomočjo analize sem potrdil hipotezo o pomembnem vplivih pomorskega sektorja na nacionalno gospodarstvo. Zaradi močne odvisnosti in povezanosti vseh načinov transporta s pomorskim sektorjem, je razvidno, da imajo državne investicije v cestno infrastrukturo tudi največji vpliv na slovensko gospodarsko rast. Dokazal sem tudi, da je bila železniška infrastruktura najmanj zadnje desetletje investicijsko-diskriminirana, čeprav uporaba železnic povzroča bistveno manj eksternih stroškov v primerjavi s cestnim prometom. Zato bo Slovenija prisiljena v bolj

razumno distribucijo sredstev namenjenih v transportno infrastrukturo, če bo hotela doseči sprejete dolgoročne cilje.