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Geographical Regularities of the Development and Functioning of the Port Systems of Georgia

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List of abbreviations:

SC – South Caucasus

CA – Central Asia

EU - European Union

FEZ – Free Economic Zone

FTZ – Free Trade Zone

FIZ – Free Industrial Zone

ESPO - European Sea Ports organization

BSR – Black Sea Region

TRACECA - Transport corridor Europe-Caucasus-Asia

BSEC - Black Sea Economic Cooperation

GUAM - Organization for Democracy and Economic Development

SPSS – Statistical Package for Social Sciences

PIC – port-industrial complex, in Soviet period consisted of sea port and city manufacturing enterprises disposed with port activities prevailing

IDP – internally displaced person

Introduction:

One of the main features of the distribution of production power of modern world is growing concentration of population and production in the seaside regions, the reason of it is a growing role of international distribution of labor, wide involvement of oceanic resources in economic turnover, use of economic advantages of sea transport, and orientation of the developed countries towards the import of raw materials (Марков 1979; Knox & Agnew 1998).

Theorists (Nye 1968) of neo mercantilism consider that world will be divided into regional blocks and as far as "combination of sovereignty and economic welfare might be reached by regional integration" (Rondeli 1995:185), countries that evolved after the collapse of the so-called "Socialist Camp" ought to prefer the future involvement in the world global space by"regional blocks". Countries of South Caucasus could not create "region" yet, which would have been economically integrated one or another way, but international society prefers to have deal with South Caucasus and countries of Black Sea basin region. Therefore we also use these terms (SC and BSR) European Union (ENPI CBC programmer 2007) considers that the best way of involving post-socialist countries in European space is development of transport corridors and diversification of transit flows through Georgia and SC, as an alternative to Russia's monopoly over oil and gas transit corridors.

In the new reality the real resource of Georgia's development is to strengthen its transit function in regional blocks, through the Black Sea ports.

New conditions changed Georgia's geostrategic function. The **actuality of dissertation research is** to study the possibilities of involvement of the country and the SC region in the global economy using Georgian ports.

Purpose of research is to determine Georgian ports' role and place in the development of country and South Caucasus region and their involvement in global economy. Concrete tasks are:

1. Studying of the ports' resource potential

2. Analysis of factors of the ports' development

3. Analysis of the ports' services and turnover of goods

4. Determining relations between ports and port cities

5. Studying the influence of Georgian ports on port city, the country and the region

6. Comparative analysis of ports in the BSR

7. Ranking of ports by selected criteria

8. Elaboration of parameters for classification of BS basin ports

9. Determining competitiveness of Georgian ports in the BS basin

Geographical Objects of research: port systems of Batumi and Poti.

Subject of research: organization and functioning of port systems; port systems as an instrument of development of port city, the country and the region.

Theories used in this study: neo-mercantilism (or economic nationalism), globalization, location theory.

Neo-mercantilism, or economic nationalism theory (Nye 1968; Kobrin 1995) considers that world economy will be divided into regional blocks. Using this approach method, we considered role and place of Georgian port systems in BS regional block. Although block is a rudimentary construct, countries have desire to integrate and cooperate. We also consider importance of Georgian ports for SC region, as means of involvement in global economic space.

Location theory, or spatial analysis theory, is based on Standort theory. This is an enterprise location theory, a representative of which is Wilhelm Launhardt. According to his theory, named "Launhardt triangle" (Weber 1909), minimization of transport costs is possible by optimal location of manufacturing. A well-known representatives of this school are Alfred Weber (Weber 1909), Walter Isard (Isard 1969), who is the founder of regional science as well, Peter Haggett (Haggett1966) Abraham Probst (Пробст 1971), who created a concept of territorial planning and location, which is expressed in the development of territorial-industrial complexes in the Soviet Union. Our object of research - Georgian port systems - are successors of port-industrial systems, created in the Soviet period.

Globalization theory is the world economic, political and cultural integration and unification theory (Giddens 1999; Fukuyama 1999). One of the principal approaches of globalization theory is

regionalization, which simplifies manufacturing relationships between countries and insures common economic space. Using globalization theory, we considered ways of SC and BS regions' economic involvement in global space.

Methods of research: In the study we use comparative analysis, historical, field research, statistical, SWOT-analysis, sociological methods.

Methods of obtaining data: statistical data was obtained from ports' websites, from administrations of selected ports of Bulgaria, Ukraine, Russia, Georgia, and appropriate departments of port cities, Ministry of Economy of Georgia and other state institutions.

We made structured quantitative survey of 80 respondents using questionnaire method and we polled 100 respondents in Poti and Batumi using Aizen-Fishbein method of reasoned action (Aizen L. & Fishbein M. 1980), which measures person's purpose of behavior. We used these methods as an additional data method to study expectations and intentions of population about creation of Free Economic Zones in Georgia.

We selected six experts according to their knowledge of social and economic geography theories, geography of cities and transport, economy, FEZ and port-transport sphere (see appendix).

Methods of data analysis: we made typology of data by picking out thematic blocks and ranking of received data.

Processing of statistical figures and quantitative survey data about ports was made in SPSS-19.0.

We made correlation, regressive and factor analysis of data.

We calculated Black Sea ports' rating by using ranking method.

Using correlation analysis method we determined connections of strong and weak factors between ports' parameters and we distinguished the core factors, which are the most important characteristics of ports. These correlations are discussed by Rimmer (1969) who gave a classification of ports.

Using regression analysis we determined the level of deviation from basic trends of the data obtained by both methods.

Using factor analysis, ports' characteristics were distributed in four basic groups.

In 2009, ESPO commissioned a study for economic analysis of the European port systems, which was carried out in the University of Antwerp (www.espo.be). European ports were grouped in clusters, according to resembling characteristics. Among BS ports, the scholars sorted out only western ones - Constanta, Burgas, and Varna. It is noteworthy that ESPO has not performed clustering of the East Black Sea ports. The novelty of our thesis is that we have carried out clustering, using factor analysis, of the important ports of all countries of the Black Sea basin.

The results of the second survey were based on qualitative analysis. The results of qualitative analysis made by groups received from factor analysis coincided with the results received by ranking indicators, and ports' ratings coincided with each other in both cases. In our opinion it confirms reliability of this method.

Studying of expert opinions and processing of data was made by qualitative content- analysis.

Based upon received data, basic regularities were revealed and conclusions had been done.

Scientific novelty:

- Comprehensive geographical study of Georgian port systems was carried out.
- Parameters of estimation of port systems' functioning was determined based on the analysis of literature about port systems and on personal experience
- A model of classification of ports was created
- Ranking and cluster division of the BS basin's ports was carried out
- A comparative analysis of the BS basin ports according to a complex approach was made for the first time.

Practical importance of the study:

- The outcomes of this research could help government of Georgia and experts to work out maritime policy of the state;
- Conclusions and basic novelties of work will assist local administrations in making decisions;
- Dissertation materials will help government in determining ways of port cities' and country's social-economic development;
- The results of this work can be used in research of port systems of other countries and regions, for their comparative analysis, classification and ranging;

- It will help port administrations to study competitor ports and plan their policy;
- It is possible to use this material in academic courses of Economic Geography at the Georgian universities

Structure and size of the study: dissertation consists of introduction, three chapters, conclusion, bibliography and appendix. It contains 144 pages of text, 12 tables, 58 graphs and diagrams, bibliography contains 160 items. There are 14 tables and 20 pages of appendix containing 4 maps.

Chapter I. Role and place of port systems in the world economy

1.1. Port systems International experience

Various types of port systems are functioning in the world, specific characteristics of which are stipulated by natural and economic conditions, geographical location, development of purchasing power, place in the world, geographical distribution of labor. The sources distinguish between the port systems of developed countries, developing countries and transition economies. Each of them are characterized by different traits, in particular. According to V.Maksakovskyi (Максаковский 2008), they are:

Port systems of developed countries, in which following port systems could be distinguished:

- Multifunctional port systems. They are marked by significant share of international trade, multi branch processing economy oriented on importing raw materials for export, developed infrastructure, deep connections with hinterland. Such port systems play important role in the economic and political structure of the country
- Specialized port-industrial systems, where import of oil, iron ore and processing of agricultural raw materials prevail.

Port systems of developing countries, most typical of which are:

- Relatively developed port systems of Latin America and Asia, where the largest share of country's economy is over concentrated
- African ports, from which raw materials are being exported, are potential hearth of system creation

Port systems of countries with transitional economy, which are based on the Soviet system port complexes, transformed according to market economy rules (Ukraine, Russia).

In this study international experience about port systems are considered on examples of the following countries: Japan, USA, Belgium, Netherlands, Germany, the United Kingdom, France, Ireland, South Korea, Mexico, Brazil, Singapore, Ukraine (Brant 2000; Harding 2007; Kreukels & Weller1996; Masiuki & Piyish 2001; Wang& Oliver 2004; Овсяников 2009/7; Charlier 1996).

Future development of port systems in the world depends on the deepening of international distribution of labor, economic efficiency of sea transport and the level of dependence of developed countries on raw material import.

1.2. World experience of Free Economic Zones and the case of Georgia

In this chapter world experience in establishing FEZ is analyzed on the example of the USA, Western European countries, China and Russia. Typology and function of FEZ of developed and developing countries is given as well (Савин 1999/6; Дергачев 2008).

There are over 2000 FEZ in the world, with 43 mln employees. They are operating in over 100 countries and their share in world turnover rose from 8% to 35% in 1960-2007 (Дергачев 2008).

FEZ are different in developed and developing countries.

Over 30000 companies are operating In Free Trade Zones of the USA, which were created in 1930-ies to overcome the economic crisis. FTZ of New York-New Jersey was created in 1979, where 2500 companies are operating and has 34000 employees (www.panynj.gov). In the USA FIZ are financed by federal programs. For local government, joint projects with federal government are very advantageous. Government is less interested in foreign investments in these zones. In 2008 export of the USA from all FEZ amounted to 40 bln USD (www. naftz.org).
Developed countries and countries with large territories create FEZ to implement regional policy (Papava 2007), in order to revive depressive regions.

Almost all developing countries created export form of FIZ, which is oriented towards exporting raw materials from sea ports and airports.

In the post - socialist countries FEZ was considered as an instrument for transition from centralized economy towards free market.

In Russia FEZ were created since 1980s. Their weakness is that they are spread over large territories and there is vague mechanism of privileges, which leads to misuse of law (Левитин 2007).

China is an example of successful functioning of FEZ. It started to create FEZ in the 1980s. 50% of production of its "Special Economic Regions" is exported. Their specialization is processing manufacturing and development of trade network. Privileged customs and tax regulations are created for foreigners, while Chinese are given the opportunity to purchase modern technologies, obtain modern methods of management and train qualified personnel that is being coped with successfully (Дергачев 2008).

One of the ways of getting out from economic crisis In independent Georgia was considered creation of FEZ.

In Georgia the experience of FEZ starts from XIX century a small settlement of Kulevi (former Redut-Kale) was announced porto-franco in 1821 to encourage import of goods from the other countries into Russia's Caucasian periphery and to subjugate markets of Iran and Turkey. After establishing privileges for trade, Kulevi became the only warehouse in the Transcaucasus.

In 2008 Poti FIZ was created. There is no homogenous attitude towards off-shore zones in the world and that's why government emphasizes that it will not be an off-shore and even placed word – "industrial" in the name. Port of Poti and FIZ are considered to be under single management. UAE company "RAK Investment Authority" purchased 51per cent of shares of the port in April 2008 and later -- the rest 49 per cent. The same company purchased 300ha of land for FIZ [Report of port's administration, 2009]. According to Georgian legislation FIZ is exempted from land and property taxes, and tax of services among companies in FIZ and the authority of local government are not spread on FIZ.

Investor will use space with low transport and industrial costs, production realization channels and geography, adventurous natural location, ease and safety of management system. But what profit the city will gain from the FIZ is unknown.

In our opinion big investments in the Poti FIZ will affect disbalanced development of the country, poor regions will become even poorer and population will leave such regions. Many Georgian companies may register in the Poti FIZ zone that will lead to the decreasing of budgetary incomes. The Poti FIZ territory may go out of country's political and economic control and it may create another political-territorial problem.

On the other hand the Poti FIZ theoretically may become an instrument in resolving ethnic conflict in the adjacent area as common economic activity in the neighboring and ethnically bound provinces of Samegrelo and Abkhazia may influence on the demolition of artificial boundaries. In practice this is less possible as interests of the third party – Russia – are involved in the area.

The Poti FIZ viability will depend on the level of differences between the declared and real goals. For an investor FIZ is attractive with possibilities of gaining privileges (tax-free production), while for the government FIZ is an instrument in the solving of the adjacent region's problems such as poor infrastructure, lack of industrial enterprises, high unemployment and tough social situation. But foreign investments come to a country for gaining profit and not for solving its socio-economic problems.

Poti FIZ is not functioning yet, because of the lack of interest of foreign companies. It is matter of speculation whether the Poti FIZ will be able to replace the Soviet-time port and to become an instrument of development of the depressive adjacent regions.

1.3 Empirical research: methodology and data

The expectations from the FIZ might be high in society, so we have carried out a sociological research, aimed to study attitudes of population towards the FIZ.

We elaborated a questionnaire and research had taken place in Poti and Batumi. 80 respondents were interviewed: they were selected among people who were familiar with the FIZ issues. They were employees of cities' and ports' administrations, and of Ministry of Economy of Adjara.

Behavioral intentions and expectations of population towards FIZ were studied using Aizen-Fishbein method of reasoned action (Aizen L. & Fishbein M. 1980). Respondents were from port cities of Poti and Batumi. We questioned 100 persons. Using both methods, 180 respondents were questioned.

Expectations of population revealed by research, are pointing towards such positive and negative factors resulting from operating of FIZ, as flow of investments, social-economic development of country, raising employment level, resolving ethnic conflicts, ecological pressure on nature.

Population's opinion must be taken into consideration during implementation of all important state projects, among them is FEZ, it will raise involvement of population in decision making of government.

Georgia must try to use positive experience of FEZ functioning and act according to the highest interests of the country's development.

Port territorial systems and free economic zones are important instruments for development local and regional economies, effective trade in global market and involvement in world integration processes.

Chapter II – Functional load of Georgian ports

2.1 Georgian ports as city-forming factors

To define city-forming function of Georgian ports' two indicators have been applied:

1. The dynamics population number of port cities

2. Share of "sea component" in the structure of city manufacturing.

The main reason of Batumi's population growth was development of its industrial, trade and port (transportation oil cargo) functions. In 1807 population of the city was 2000 residents, by 1914 the population of Batumi grew 19, 3 times and reached 38 615. Population of Poti between 1865-1914 grew 15 times, because port needed large number of workforce.

In Soviet times city-forming function of ports was still an important factor. In 1926-1989 population of Poti and Batumi raised 2, 8 times each, and the tempo of growing was significantly low than in pre-Soviet times. Output of port-industrial complexes of Batumi and Poti city manufacturing was growing steadily both in quantity and monetary terms. In 1988 goods produced in 8 port-industrial complex forming enterprises amounted to 57, 7% of city's GDP; they also made up 49, 6% of the employed personnel; 55, 7% of profit; 4, 9% of the republic's manufacturing production. In 1988 Poti port's industrial complex constituted 82% of city's manufacturing production and included 44,3% of employed personnel (Батуми…1989; Поти 1989).

Port industrial complexes in Batumi and Poti were factors of social-economic development, determinant of economic specialization and urbanization.

Since independence population of research cities under research has not significantly changed. The reason was balancing of out migration flows, as the emigrants wave caused by social-economic problems, by refugees IDP from conflict regions from Abkhazia. Despite the existence of necessary material and social resources for development of industry, Batumi and Poti port industrial complexes (PIC) were disintegrated and cities could not use potential of growth and development that can result from seaside location and ports' functioning. In Batumi 300 enterprises are registered and none of them are connected to the seaside location and port activities [Report of Batumi City Hall, 2010]. In Poti's manufacturing profile specialization of PIC is better maintained. From 250 registered enterprises only 8 are functioning, among them mill factory, Poti hidro factory and shipbuilding factory, all three are part of Soviet-time PIC. Total output in 2009 was valued in 1699500 GEL, out of which 502300 GEL is the share of these three factories. 890 200 GEL is the share of three fish processing factories, which is 81% of total production. In above mentioned 6 enterprises 45, 3% of total workers are employed [Report of Poti City Hall, 2010].

Today Georgian ports lost city-developing functions. Functional (economic) and spatial ties are lost between port cities and port themselves, while port and city must represent constant social, infrastructural and industrial support for each other. It works in such way in Europe, where ports create economic connections around themselves and their level of participation in city industry and infrastructural development is high (www.hafen-hamburg.de).

2.2. Georgian ports as the factors of the South Caucasus regional development

Dissolution of the Soviet Union significantly changed geopolitical situation in Eurasia. South Caucasus was a "deadlock" of the Soviet Union and had less intensive foreign economic relations, but in a new reality this region became a decisive factor in developing of future direction of transport-communication network in Eurasia. Georgia has a desire to become a "sea gate" of South Caucasus, as it has distinctive strategic location among South Caucasus countries, because of its' connection to the Black Sea. Basic share of Armenia's and Azerbaijan's foreign economic relations are realized through Georgian ports. However, Azerbaijan develops relations since 1870-s, when it became necessary to use geographic location of Batumi for exporting Baku's oil and Chiatura's manganese, which were important resources for Europe.

In the Soviet period internal and external connections of Transcaucasus (the term used in the Russian Empire for the South Caucasus) and Middle Asian republics with southern regions

(Ukraine, southern Russia) of the Soviet Union and Europe were realized through Georgian ports, but those connections were less intensive because of centralized economy and closed space of the socialist camp.

In 1990-s Transcaucasus countries gained independence and Georgian ports became important instruments of the currently called South Caucasus countries' social-economic development and its involvement in the world economic space.

In Georgian ports 84% (in 2009) of processed transit cargo comes from Azerbaijan and Armenia. Azerbaijan and Armenia are realizing large part of their economic ties through Georgian ports.

From Poti port the following goods are transferred to Azerbaijan: bauxites, cereals, clinker from Turkey and Israel, clay, aluminum, quartz from Bulgaria and Ukraine, steel from Turkey, cars and equipment's from Belarus, Ukraine, Bulgaria, Moldova, Germany, Latvia and other countries; to Armenia- fuel, machines from Ukraine, Bulgaria, Russia. To both countries- tropical fruits, chicken, military cargo from Ukraine, Brazil, USA and others (report of port administration, 2010).

In Batumi port's turnover export-transit cargoes are: oil – from Azerbaijan, scrap-iron from Armenia, export-transit cargo of Central Asia are now passing through Russia. Import-transit cargo is intended for Azerbaijan, Armenia and Central Asia (report of port administration, 2010).

Because of Central Asia's landlocked location, countries of this region are searching for diversified directions of involvement in the world economic processes. The use of Georgian ports may be profitable for this region, both politically and economically, because it makes them less dependent on Russia.

Hence, Georgian Port Systems are one of the main factors of South Caucasus regional development. However, the wide regional significance of Georgian ports will grow only after attracting additional cargo from CA and perhaps China too.

2.3. Transit function of Georgian ports as a factor of country's economic development

Georgia does not have strategic natural resources, but has transport-geographical location that gives strategic transit function.

In 1990s Western countries had high hopes on involving the post-Socialist countries in the world integration processes by means of establishing new transportation corridors.

Eurasian transport corridor “TRACECA” running via Caucasus was created by the support of the EU. The purpose of this project was provision of support to political and economic independence of the post-Soviet countries for their involvement in the world market and development of regional ties. This project was also considered as a geopolitical one, because it is mainly created as an alternative to transit roads passing through Russia and for their diversification.

Unfortunately “TRACECA” is not equally important for all its members. Central Asia is oriented towards Russian and Iranian corridors, West BS region– on Pan European corridor. Hence for Europe Ukraine-SC corridor passing to Central Asia (CA) is only interesting as an alternative to Russia. For Georgia “TRACECA” is highly important. It is used as a mean of involving in world market, regional cooperation, increase of turnover volume and connection with Trans European infrastructure, and it is a guarantee of security and sustainable development.

Georgia has more or less developed legal base framework and transport infrastructure for performing transit function. But management is dispersed and hinders elaboration and execution of unified transit policy. Participants of transport infrastructure are oriented on momentary, maximal profit. With such policy “TRACECA” corridor is losing potential cargo for competitor (Russia, Iran) corridors, because countries of the corridor cannot agree on united tariff. The corridor is multimodal that makes project expensive and transportation becomes prolonged in time. There are many participating countries in “TRACECA” and everyone has its interest. Such conditions threaten effective use of Geogria’s transit resources in long term perspective.

Because of the limited size of Georgia’s internal market, the most of transit flows are destined for other SC countries and CA region.

All types of transport are involved in Georgian transit and import-export operations, but according to financial figures and tonnage of transported cargo – sea transport is unchallenged leader.

In Poti port turnover share of transit operations is fluctuating from 55% to 48% in 2004-2009 (report of port administration, 2010).

In geography of turnover of Batumi and Poti ports, Brazil’s share in import operations is high. Manganese ore and raw sugar are coming from Brazil for Armenia. From Ukraine: cereals, coax, coal, metal constructions, armature, petrol, diesel and others; from Turkey: automobiles, manganese ore, petrol, techniques, chemical cargo, clinker, clay, cement and others; from Russia: automobiles,

techniques, wagons, flour, cereals, petrol and others; from Bulgaria: automobiles, techniques, wagons, petrol, military cargo and others. Much more countries are involved in export operations. SC and CA regions are exporters of cargo (www.potiseaport.com; report of Batumi port's administration).

Biggest share in import have: Ukraine, Turkey, Greece, Russia, Italy, Bulgaria. In export – Bulgaria, Italy, Turkey, Ukraine, Romania, Malta.

Batumi port has not enough container cargo. The biggest share of containers sent to and received in Poti has Turkey, followed by Italy and Romania.

In Georgian ports 84% of transit turnover comes on Azerbaijan and Armenian cargo and 3% on Central Asian cargo (Ministry of economic, 2010).

Competition for cargo is a constant process. Turkey has a will to play positive role in regional development, and tries to have good partnership with Georgia, because Georgia is considered as a bridge connecting with Azerbaijan and Central Asia.

Very important factor in relationships between Turkey, Georgia and Azerbaijan is a trilateral agreement on functioning of Baku – Tbilisi – Akhalkhalaki – Kars railway, which was signed in February, 2007. This will be the shortest way of connecting Asia with Europe, which will lay through strait of Bosporus in "Marmara" tunnel, which will be opened in 2012, and Turkey with its plan will play a main part in new Eurasian corridor. Turkey's Corridor will successfully compete with many transit projects, "TRACECA" among them. Today Ukrainian and Georgian ports are important parts of "TRACECA" , because of stable Ilyichevsk-Poti/Batumi ferry march route, but from China, cargo flows are strengthening on Russia and via CIS countries towards Europe, and also new railway line through Turkey will decrease cargo moving through Black Sea ports and Poti will have to restructure cargo, since its port largely depends on container cargo coming from Azerbaijan, Central Asia and China, the large part of which probably will be transported by Baku-Kars railway. Georgia must find new cargo flows for its ports.

Transit function will have positive impact on Georgia's social-economic development as source of raising budget incomes, financial stability, development of service sphere and creating new jobs. As the internal market is less developed, it cannot create cargo flows and loading of Georgian ports depends on the level of economic development of SC region.

For development of Georgian ports it is very important to increase volume of cargo towards the directions of CA and China that will load "TRACECA" corridor and will prevent it from becoming a "Caucasian Corridor".

2.4. Port city vs tourist city

Batumi has rich traditions of tourism development. In Soviet period it was very important touristic-recreational center. Hotels could not contain all visitors and the private sector was also heavily involved in tourist business. Living standards of the population was much higher than in the other parts of the country, because of additional income generated from tourism. The reason of such waves of tourists was not only convenient natural-recreational conditions but also political reasons: the other important reason was "iron curtain" that was limiting access to foreign resorts for population that's why majority of Soviet people spent their vacations at the Georgian seaside.

Today there is a boom of hotel building in Batumi, but those hotels are expensive. Tourists with low income cannot afford them, while the number of arriving well off tourists is few because of humid climate conditions in Batumi; besides, there is a dry climate in other Black Sea countries, better service and lower prices.

In 2009 number of tourists coming to Batumi first place has Turkey (12, 7%), second comes Armenia (10, 9%), share of Azerbaijanis is 2, 3% (Ministry of economy of Adjara, 2010).

In any case the main target market for tourism development is Turkey and Armenia, and since we consider that Georgia should fill a niche in the regional tourism development, therefore we must focus on the service provision for Armenia, Azerbaijan, Iran and we think that in future it is possible to involve CA too.

State policy should not be focused only on tourism development. Investing in development of tourism infrastructure will raise dependence on external factors, climate, other countries' economic development and life standard of the population. Transport is a motive factor of economy and first of all we must use our access to the sea as an economic development factor and countries with no access to the sea should benefit as well. Therefore the Georgian ports display the function of regional economic development more than of its own country.

Chapter III: The role and place of the Georgian ports in BS basin

3.1. Comparative analysis and ranking of BS basin ports.

Interest of the world in BS region is high. The USA has military-political, the EU – energy security interests, while changing the strategic directions of transit flows of fuel is the most important for both of them. in order to get involved in the global space and come out of the Soviet legacy, it is necessary for BSR countries to create deep political-economic ties and to organize a new political-economic and cultural-geographical space.

However, the competition between BSR countries for obtaining transit function became more important than integration projects in sub-regional cooperation – BSEC and GUAM.

Six countries have access to the Black Sea – Bulgaria, Romania, Ukraine, Russia, Georgia and Turkey. Total area of those countries is 19 mln sq. km, population – 300 mln. Level of social-economic development, human resources and cultural traditions of countries of the region gives opportunity to develop any field orientated on high technologies.

Russia has developed strong infrastructure in BS, but limitation of navigation in the Turkish Straits threatened Russia's chances. Russia tries to take into consideration, new reality and creates pipeline project "Blue Stream" and "South Stream", to pass its gas around Ukraine and Belarus, and also Saint-Petersburg-Novorossiysk communication corridor to attract Eastern Ukrainian cargo flows and decrease Ukrainian ports' hinterlands, as well as the influence of Turkey in the region (Дивилиоглу 2009; Ильницкий 2008).

Turkey has strengthened military-political and economic positions in the region. Bosporus strait, through which supply of Caspian oil to Western and Sought Europe is provided, is controlled by Turkey. With increase in oil export, Turkey put more attention on security and environmental protection, and limited right of free movement by prohibiting high tonnage ocean tankers passing through the straight. It is assumed that Turkey did it for supporting the significance of Baku-Ceyhan pipeline and decreasing influence of Russia in the Black Sea.

From 1990s Ukraine lost maritime strength. Turkey took over much of trade and recreational significant, but Ukraine still intends to become "sea gate" of Europe (Верещака 2009).

Romania and Bulgaria are also trying to become regional centers. Romanian port of Constanta was declared as main "eastern gate" on Black Sea by EU (Хемптон 2008).

The level of economic development of any region is basic factor in its competitiveness on the international level. EU is developing transport systems in order to support regional policy. The main supports for region's transport infrastructure development are sea ports (ENPI CBC programmer 2007; Михайлова 2009).

There are 40 ports in the Black Sea and Azov basins: 18 - in Ukraine, 5 – in Russia, 10 – in Turkey, 2-2 in Bulgaria, Romania and Georgia.

The purpose of our research is to carry out comparative analysis of BSR ports and determine competitiveness, place and role of Georgian ports in the region.

For research purposes the biggest ports in BSR have been selected: Novorossiysk - in Russia, Burgas – in Bulgaria, Constanta - in Romania, Odessa and Ilyichevsk - in Ukraine, Samsun - in Turkey, Batumi and Poti - in Georgia.

In order to estimate above mentioned ports, we applied for several parameters for their comparative analysis and ranking:

I. Legal parameter:

1. Form of property – share private/public (in %)

II. Capacitive parameters:

1. Port's capacity – mln tn/yr

2. port turnover - mln tn/yr

3. Level of port load - %

4. port turnover - mln tn/yr

5. Handled vessels – number of vessels

6. Warehouse area – (open/closed), sq.m

7. Passenger turnover – number of person

8. Container turnover – TEU (Twenty-foot equivalent unit)

9. Container capacity – TEU

10. Rate of Container load - %

11. Types of cargo

12. Ferry

III. Hydro technical parameters:

1. Navigation – number of months
2. Port's area – ha
3. Length of coast – km
4. Number of berths
5. Depth of berths - m
6. Vessels dwt – deadweight tonnage, a ship's carrying capacity with crew and supplies

IV. Financial-economical parameters:

1. Employment – number of person
2. Salary per month – USD
3. Share in employees in a city's population - %
4. Profit per year – USD
5. Tariff – on port service – USD
6. Tariff on Cargo handling - USD
7. Customs regime – 24 hour, "transshipment"
8. Free Economic Zones – FEZ

V. Level of involvement in international economic relations

1. International transport corridors passing through port
2. International pipelines passing through port
3. Hinterland of port

In this chapter we discuss activities of ports under parameters chosen by us. In the list shown below we give quantitative indicators of these parameters.

Table #1. : Parameters of BS basin ports' parameters (2008).

Port	Novorossyisk	Burgas	Constanta	Odessa
Form of property private	80.0%	0.0%	0.0%	0.0%
public	20.0%	100.0%	100.0%	100.0%
port's capacity mln tn/yr	100,000,000	15,000,000	100,000,000	38,000,000
level of port load%	81.6%	30.8%	61.8%	91.0%
Turnover, mln tn/yr	81633000	4616000	61838000	34562000
Handled vessels	2,088	2,000	5,905	1,200
Warehouse area, open, sq.m	188,800	310,000	342,200	215,000
Warehouse area, closed, sq.m	62,200	75,000	103,800	78,800
Passenger turnover	-	18,000	30,900	82,000
Containers' turnover, TEU	381,000	45,927	1,380,935	572,140
Containers' capacity, TEU	500,000	150,000	1,700,000	700,000
Rate of container load, %	76%	31%	81%	82%
Ferry	3	3	1	1
Port area, ha	95.5	129.4	3926.0	133.3
Number of berths	43.0	28.0	156.0	38.0
Depth of berths, m	24	16	19	13
length of coast, km	9.2	4.8	29.8	9.0
Vessels dwt	250,000	125,000	220,000	100,000
Salary per month, USD	765.03	462.88		92.54
Employment, person	4493	1050	6000	2400
Population	228243	226000	721896	1081000
employers rate, %	2.0%	0.5%	0.8%	0.2%
Profit, USD	95,700.0	38,970,588.2	91,252,500.0	42,253,521,126.8
Tariff on port service, USD	1.75	0.38	3.21	46.97
Tariff on cargo handling, USD	32.42	155.35	39.70	369.88
Tariff, sum	34.17	155.73	42.90	416.85
Navigation	10	12	12	12
FEZ	0	1	1	1
Types of cargo	2	4	3	5
International pipelines passing through port	2	2	2	1
International transport corridors passing through port	3	3	6	5

Port	Ilyichevsk	Samsun	Poti	Batumi
Form of property private	0.0%	0.0%	100.0%	100.0%
public	100.0%	100.0%	0.0%	0.0%
port's capacity mln tn/yr	30,000,000	3,000,000	10,000,000	19,000,000
level of port load%	63.0%	79.3%	80.8%	37.4%
Turnover, mln tn/yr	18900000	2380000	8080000	7100000
Handled vessels	750	1,093	2,189	1,215
Warehouse area, open, sq.m	575,000	200,000	65,976	173,000
Warehouse area, closed, sq.m	28,000	25,000	9,852	-
Passenger turnover				8,464
Containers' turnover, TEU	670,556	40,000	209,614	8,583
Containers' capacity, TEU	250,000	5,000	200,000	300,000
Rate of container load, %	268%	800%	105%	3%
Ferry	2	2	2	2
Port area, ha	346.0	14.0	49.0	22.2
Number of berths	32.0	10.0	15.0	11.0
Depth of berths, m	13	12	13	12
length of coast, km	6.0	1.7	2.8	2.3
Vessels dwt	100,000	50,000	50,000	120,000
Salary per month, USD	92.54	383.23	479.04	449.10
Employment, person	10000	398	1266	1256
Population	63000	1187536	47500	122500
employers rate, %	15.9%	0.0%	2.7%	1.0%
Profit, USD	35,000,000.0	-5,308,110.0	21,788.0	confidential
Tariff on port service, USD	46.97	0.50	239.58	469.43
Tariff on cargo handling, USD	369.88	1000.00	672.65	46.80
Tariff, sum	416.85	1000.00	912.23	516.23
Navigation	112	12	12	12
FEZ	0	1	1	0
Types of cargo	4	2	4	4
International pipelines passing through port	0	0	0	0
International transport corridors passing through port	4	2	2	2

Note: only quantitative indicators are given in the list for: types of cargo, pipelines, transport corridors.

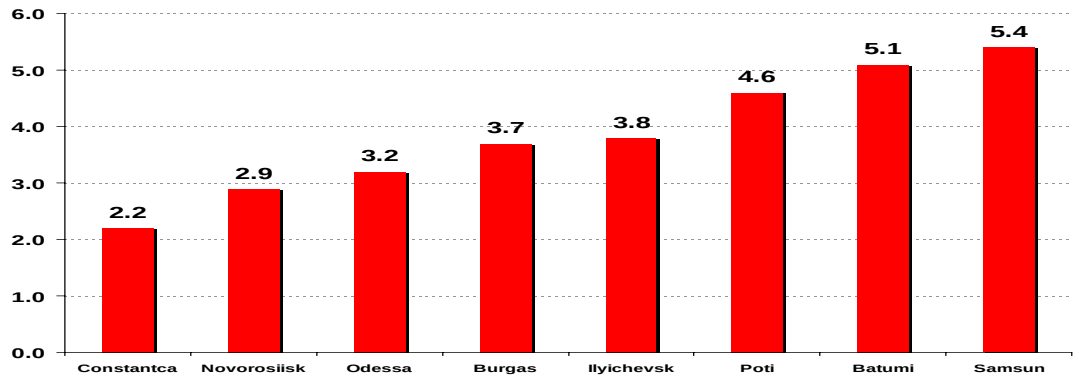
Ranking of ports:

We made ranking of ports by each parameters (see table #1). Highest rank was given to a port with highest scores, unless low scores were determining advantageous conditions like in case of tariffs. In such cases highest ranks were given to ports with lowest scores. Highest rank is 1.

According to overall ranking parameters, ports were ranked in following way:

Overall ranking	
1.	Constanta
2.	Novorossiysk
3.	Odessa
4.	Burgas
5.	Ilyichevsk
6.	Poti
7.	Batumi
8.	Samsun

Table # 2: Overall ranking of ports by factors.



Ports of the BS region play major role in transport communications between Europe and Asia. Ranking of the ports was made in a logical way. Constanta and Novorossiysk are important ports in the region by all parameters according to all factors. Constanta is distinguished by service quality. Novorossiysk has large cargo flows, backed by Russian economy and resources. Ukrainian ports, Odessa and Ilyichevsk also want to be leaders in the region, but because of transitional character of

Ukrainian economy and transfer of Russian transit cargo to Russian ports, they cannot reach leading position. Batumi as an important port for Bulgaria and Balkans, also tries to take leading position in the region. Samsun port is an outsider among all ports, but Turkey tries to turn it to an important part of the region.

By the analysis of ports, using summing factors' ranking indicators, it came clear that Georgian ports do not have attractive, hydro technical and tariff parameters. They only have comparatively high geopolitical parameters. If country will become strong enough to develop internal market and will be able to attract not only South Caucasus cargo, but Asian, Chinese and Pacific Ocean cargo, then Georgian ports will be considered as important actors in Black Sea basin.

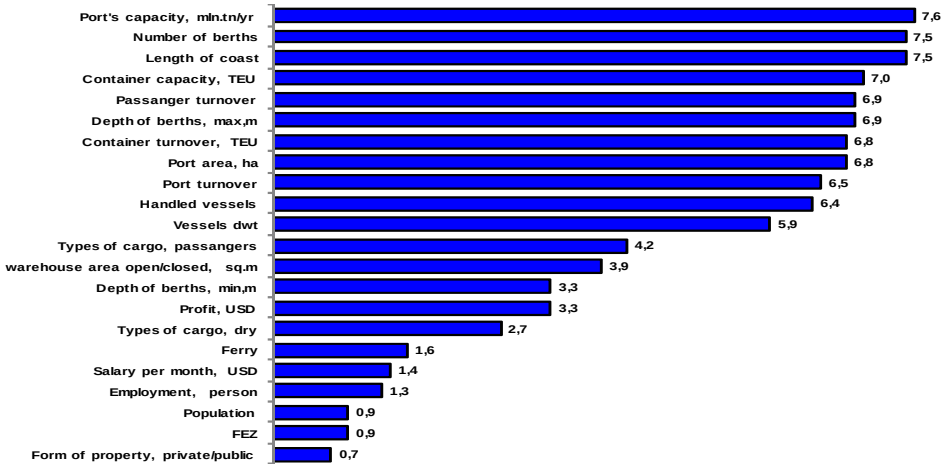
3.2 Classification of the BS basin ports

The classification of ports has been undertaken using a method of factor analysis.

We tried to work out parameters of ports comparison, classification and ranking. Data processing was done in SPSS 19.0. By generation of special indices (see figure bellow) this method allowed to determine the most and the least important parameters of the ports.

The reliability of these outcomes has been proven by regression analysis.

Figure # 1: Parameters by Importance (indices by in percentage).



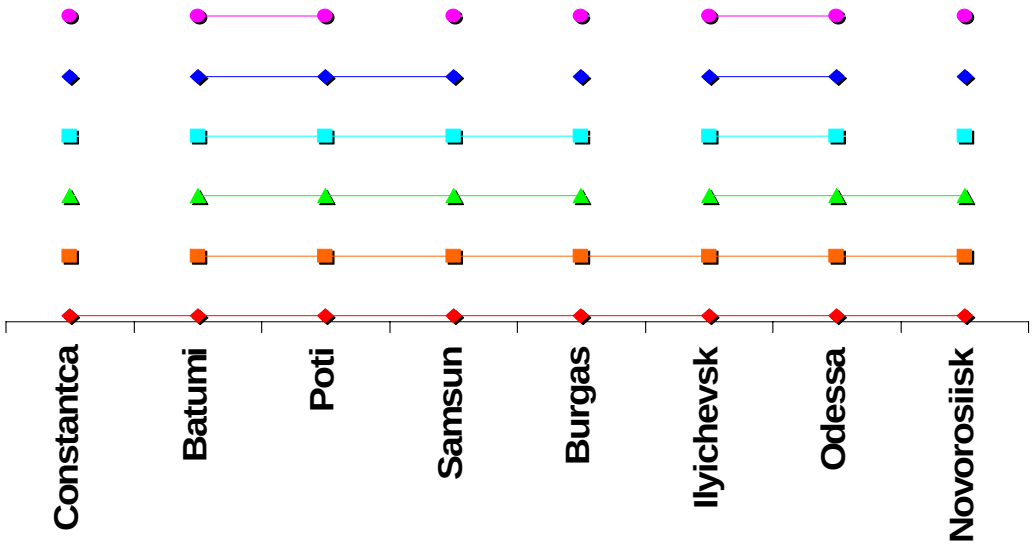
The next step envisaged estimation of similarities of particular parameters throughout ports and grouping similar ports in clusters. For this we used a method of hierarchical cluster analysis.

On the first level of hierarchical clustering all ports are together, that should be so (Durglishvili 2006).

Other details of disintegration in accordance with the levels i.e. how the process of separation of hierarchical cluster groups was being carried out according to the certain ports is shown in Figure #2

In figure shows that Constanta was outlined as distinguished and advanced in comparison with other ports already on the second level of clustering. Finely Batumi and Poti were combined in one cluster. Ilyichevsk and Odessa are also together, but in separate cluster. Other ports are standing separately because of are different capacitive, hydro technical, financial and other parameters. Their hinterland, cargo flows and perspectives are totally different. In Black Sea basin important competitors are Constanta, Odessa and Novorossiysk. Burgas is trying to get influence on Balkans and become exporter and importer of its cargoes. Samsun must become main Black Sea port in Turkey it is strengthening now. Poti and Batumi are in the same cluster, because they are in the similar country, they have same parameters, common hinterland, same specialization, small internal market and, therefore, both depend on transit cargo. They are less important actors in the competition between the Black Sea basin ports.

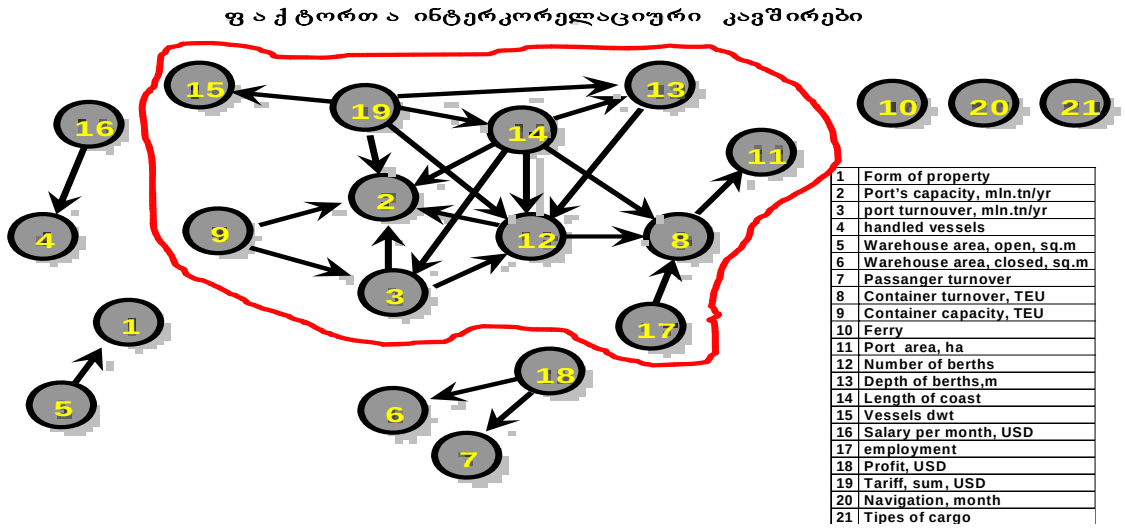
Figure # 2: Clustering of ports



In order to estimate parameters of ports we conducted another approach, by using correlation analysis method (Rimmer 1966). Chosen parameters of ports are important variables in estimating and comparing ports. Our interest is to find out how these variables relate to each other.

Below is shown spatial disposition scheme of parameters, received by correlation.

Figure # 3: Correlation of parameters/factors.



On this scheme we clearly see groups of basic and peripheral parameters.

The "nucleus" of factors could be also divided into two factor groups: more important and less important (three and more links). According to this subdivision: turnover (3), port's capacity (2), Tariff (19), length of coast (13), number of berths (12), containers turnover (8) have been outlined as the most important factors/parameters.

If we sum up results of correlation, we will see one important cluster united group of factors that determine qualitative indicators and competitiveness of ports. Other important parameters stand in separate groups (10, 20, and 21) and there are other auxiliary parameters, which are less determinant parameters for port's functioning. Correlation matrix showed us that all distinctive parameters are related to each other and some parameters are important for ports' functioning some are auxiliary. Determining the relations, showed us the most important factors, by which comparative analysis of ports can be done.

With factor analysis we can find hidden relations of different variables, were they are united in correlated variables. In order to pick out factors, we used "Principal Axis Analysis" method, where

we showed basic factors. We picked out 4 factors, where their weight (Initial Eigen values) equaled to following:

See below factor components' matrix of 21 parameters:

Table #3: Factor components' matrix

Count of Component Matrix(a)				
	1	2	3	4
1. Types of cargo				0.626
2. Navigation, month			0.737	
3. passenger turnover			0.649	
4. Salary, USD		0.934		
5. Handled vessels		0.740		
6. Ferry		0.712		
7. Form of property		0.596		
8. Number of berths	0.974			
9. Length of coast, km	0.974			
10. port's capacity, mln tn/yr	0.938			
11. Tariffs, sum, USD	0.878			
12. Containers capacity, mln tn/yr	0.860			
13. Depth of berths, m	0.843			
14. Turnover, mln tn/yr	0.828			
15. Port area, ha	0.819			
16. Containers turnover, TEU	0.803			
17. employment	0.753			
18. Profit, USD	0.728			
19. Vessels dwt	0.719			
20. Warehouse area, closed, sq.m	0.717			
21. Warehouse area, open, sq.m	0.398			

4 groups were distinguished Using factor analysis. We can name them as follows:

I factor- hydro technical-capacitive parameters

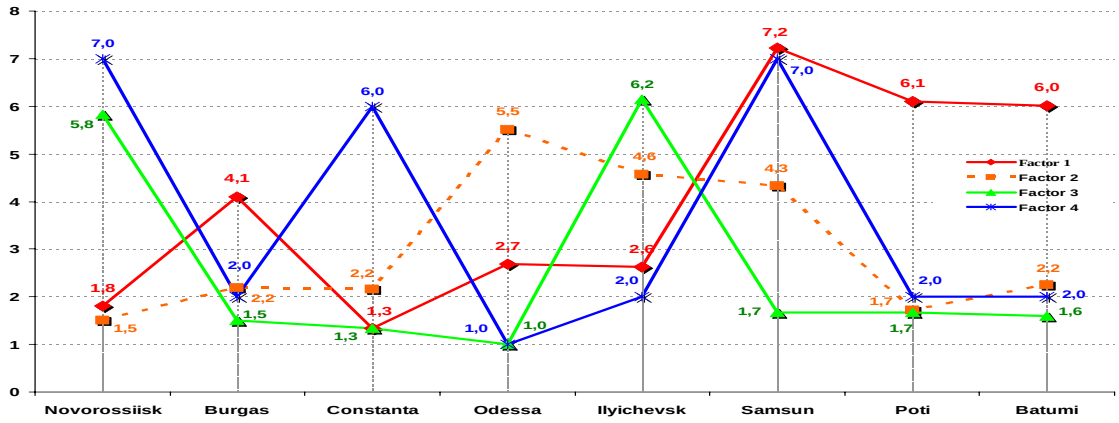
II factor- transport parameters

III factor- capacitive parameters

IV factor- structural parameters

On this graphic ports' ranking indicators are given by all 4 factors. Highest rank is 1.

Table # 4: Ranking of ports by factors.



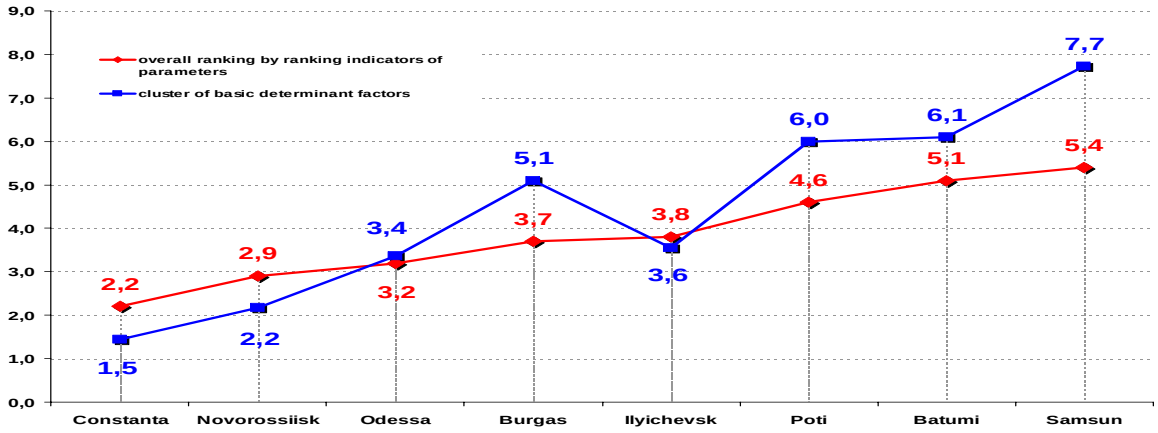
We discussed two different models of grouping of parameters, by which we determined relations, distinguished factors and explained factors that define viability of ports.

First model shows us which factors are related to each other. Distinguishes determinant factors, which influence and determine other factors.

Second model shows which factors are grouped together in logical factor categories.

In the table below, we superpose the outcomes of these two models. It shows that they mostly coincide with each other except for very few cases. In particular, Burgas and Illichevsk shifted their places in these models.

Table # 5: Comparison of overall ranking of ports by two methods



In my opinion it's possible to classify other ports by parameters grouped in main of ports' quality, clustering and determining of rankings.

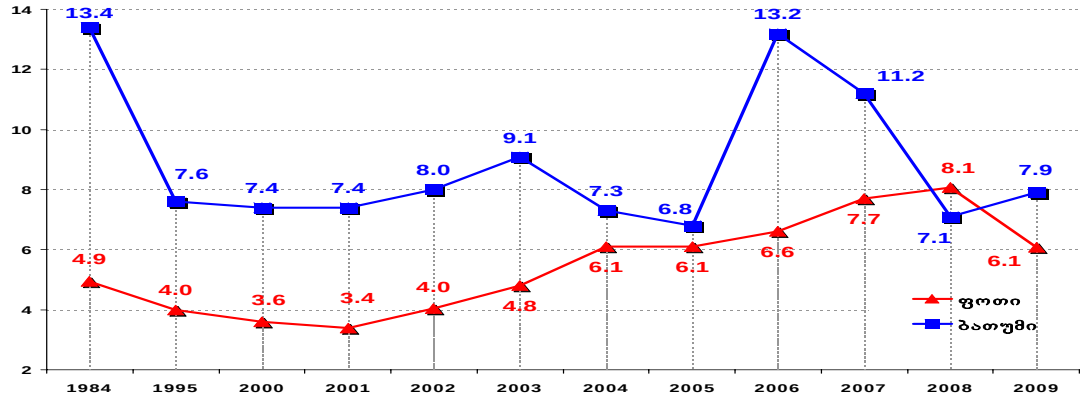
3.3. Contemporary situation of Batumi and Poti port systems

For Europe, Georgian ports become "sea gate" for SC and CA. Georgian ports have increasing cargo flows, they become more diverse and serve multimodal transport corridor "TRACECA" by ferry, Ilyichevsk-Poti/Batumi.

In this chapter hydro technical and capacitive parameters of Batumi and Poti are discussed. Both ports are specializing on container, dry, liquid and ferry cargo transportation. Georgian, SC and CA cargo is unloaded in these ports.

Georgian ports turnover in 1984-2009 is given below (report of port administration):

Table # 6: Turnover of Poti and Batumi ports, thousand tones



Georgian Ports have all necessary conditions for development -- advantageous transport-geographical location in relation to hinterland, international sea roads and land corridors, but real state policy is absent. Government is not subsidizing and investing in port industry.

Batumi port and oil terminal was purchased by Kazakhstan oil and gas state company "Kazmunaigaz" (Сартай 2008). Port of Poti was purchased by Arabian company "RAK Investment Authority". By selling its ports, Georgia has to some extent lost several means for development and integration in the world economic space.

Port activity requires extreme cautiousness from environmental point view. Unique landscapes and protected territories must not be threatened by development of transport corridors and diversification of transit cargo. We ought to develop economy trying not to put environment under threat, otherwise we will have neither of them.

By SWOT analysis we determined potential of Georgian port systems, revealed strong and weak sides of them and defined opportunities and risks of development:

Strong sides	Weak sides
1. Multimodal transport network **2. International transport corridors** **3. High level of access to transport** **4. Concentration of intellectual activities and services in port cities** **6. SC and CA market**	1. Peripheral location related to leading world political-economic centers 2. Absence of the state economic policy and, in particular, maritime policy 3. Low level of integration between BS region countries 4. Low level of integration of SC region

	countries 5. Administrative-functional barriers as hindering factors 6. Absence of functional-spatial links of ports and cities 7. Inefficient management 8. Low level of development of internal market
Opportunities	**Risks**
1. Development of national economy **2. Strengthening of transnational and regional cooperation** **3. Unhindered transportation of passengers and cargo** **4. Opportunities for integration in PanEuropean transport space** **5. The only alternative for Armenia, and partially for Azerbaijan.** **6. Attractivity for Central Asia and Middle East**	1. Regional and internal conflict zones 2. Innsufficient security of transport corridors 3. Conflict of economic interests between the countries of BS region 4. Development of alternative transport corridors 5. Global economic crises and their regional results 6. Pressure on environment caused by transport-industrial activities

General conclusions are based on the results of the complex research:

1. Two forms of territorial organization of coastline – (a) port-industrial systems and (b) FEZ – are developing rapidly and gaining more importance due to the deepening of international distribution of labor in modern global space, increase of use of oceanic resources, using economic advantages of sea transport and orientation on imported raw material in industrially developed countries.

2. One of the main instruments in port development is considered to be FEZ, which is of primary interest for Georgia. Taking into account the liberal legislation of Georgia, it is rather vague what benefits could the state and business get from the Poti FIZ. If the FIZ will be able to develop port

systems, provide import of raw materials and manufactured products for the whole South Caucasus, then it will have better perspectives for development.

3. In the XIX- XX centuries the main city-forming functions of Batumi and Poti were the development of maritime transport and international trade, along with military-administrative and port-industrial functions. In independent Georgia connection between ports' functions and city development had loosened.

4. The EU attempts to ensure the development of trade systems to support regional policy. Sea ports are a basis for development of the regional transport infrastructure. Georgian ports were not affected as yet by the EU declared policy. The EU has not developed any program to support Georgian ports.

5. Georgian government's attitude towards its ports is not systemic and only spontaneous activities could be observed.

6. Georgian ports are connected to Trans-European infrastructure by TRACECA transport corridor that connects Europe and Asia via Georgia. TRACECA is supposed to be a guarantor for regional cooperation, increasing capacity of cargo flows, security and sustainable development.

7. Export-import and transit are important in structure of cargo flow for Batumi and Poti, since Georgia's internal market capacity is not enough to sufficiently load them, hence they also operate on treatment of South Caucasus and Central Asia's regional cargo. Development of transit functions is a guarantee of involvement in global economy. The world community also supports development of this function.

8. For Georgia, which is a peripheral part of Europe, creation and development of efficient port systems is necessary for involvement in international trade and development of export oriented fields. Consequently it is necessary to elaborate state policy considering international experience. Today Georgian government does not have a maritime policy. The only policy applied to ports is selling them out. By selling ports, Georgia loses means for development and integration in world economic space.

9. Using ranking analysis it was revealed that Georgian ports' role and place in port system of BS basin is insignificant. In BS basin Georgian ports have mostly political importance. They don't have better capacitive and hydro-technical indicators than the other ports. They only can attract cargo by

low tariffs, but the tariffs must be decreased by commercial activities and not by bargaining with the government. High tariffs of Georgian ports compels consumer to seek other transportation roads.

10. Using statistical package we determined parameters' weight and importance for estimation of ports and have divided ports into clusters. We used chosen parameters of estimation of ports, as variables for correlation analysis; we conducted factor analysis, distinguished main groups of important factors, by which we ranked ports. In our opinion, by these chosen parameters and priorities, it is possible to make other region's ports'ranking, determining competitiveness and comparative analysis of ports. We can use these parameters and methods to make qualitative estimation of ports, clustering and ranking.

11. Function of Poti port corresponds to overall context of city development and it can raise turnover by attracting transit, development of internal market, flexible tariff policy and development of high quality port service, but in case of Batumi there is evident disharmony in development of city and port. Government policy is to develop Batumi as a regional and tourist-educational center, which contradicts with cargo port's functional organization. Specialization of Batumi port needs to be reviewed and we must exclude certain parts of it, that contradicts with needs of city development and deliver them to Poti.

12. To eradicate confrontation between port and touristic functions, it is necessary to make coastal line zoning and distinctly divide functions. It will also support Georgian Black Sea coastline ecological security.

13. Georgian ports have political, economic and social importance for country's security, economic development, involvement in the world global space, employment and increasing of population's living rates. Future of Georgia's port systems depends on overcoming of political-economical crisis and international political directions.

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The principal statements of the dissertation work are reflected in the following publications:

1. Долбаиа Т. (2010). Порты грузинского причерноморья и их роль в интеграции Южного Кавказа в мировую экономику, материалы международной конференции «Трансбалтика 2010», Рига, Латвия.
2. Dolbaia T. (2010). World experience of Free Economic zones and Georgia. Proceedings of conference materials. Tbilisi. (In Georgian).

Appendix:

Six experts were questioned using in-depth analysis:

1. **Revaz Gachechiladze** – Doctor of Geographical Sciences, Full Professor of Tbilisi State University.
2. **Archil Gegeshidze** – Senior Fellow of Georgian Foundation for Strategic and International Studies, Doctor of Geography.
3. **Gia Tsagareli** – Doctor of Geography.
4. **Vladimer Papava** - Senior Fellow of Georgian Foundation for Strategic and International Studies, Doctor of Economical Sciences.
5. **Vladimir Vardosanidze** – Urbanist, Doctor.
6. **Alexander Rondeli** – President of Georgian Foundation for Strategic and International Studies, Doctor, Full Professor of Tbilisi State University.

Questionnaire:

"Experts' opinion on development and functioning of Georgian ports"

1. In your opinion, does the state policy of development of Georgian Black Sea ports exist?

- Exists
- Does not exist
- I don't know

2. If state policy of development of Georgian Black Sea ports does not exist, what do you think is the reason of it?

3. Do you think that government's actions towards development of Georgian Black Sea region are spontaneous?

- yes
- no
- I don't know

4. If yes, what is the reason of such actions?

5. How consistent is government's policy on development of Georgian Black Sea region?

- It is consistent
- It is less consistent
- It isn't consistent

6. If it is consistent, what are the main aspects of this policy?

7. If it is less consistent, what is the reason of it?

8. Please explain, how consistent is development policy of port of Batumi?

9. Please explain, how consistent is development policy of port of Poti?

10. Do you think that development policy of port of Batumi contradicts with other functions of development of Adjara coastline?

11. Does the development of Georgian port systems hinder ecological security of the coastline?

12. What is the function of FEZ in development of Poti and Georgian economy?

13. In your opinion, what is the role and place of Georgian ports in BSb and what is the level of their competitiveness?

14. In your opinion, what is the role of Georgian ports in integration of SC region in global economic space?

15. In your opinion, what is the role of Georgian ports in development of country's economy and its integration into world economic space?

16. What are the perspectives of development of Georgian ports?