“Doctoral School of International Relations and Political Science”

THESIS SUMMARY

of the Ph. D. Dissertation of

Gábor Miklós

Central European trade routes and their changing importance

Supervisor:
Dr. Márton Péti
Associate Professor, Corvinus University of Budapest

Budapest, 2024.

Institute of Global Studies – Department of World Economics

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I. Research background and justification of the topic

The transformation of the world economy, the increasingly complex and large-scale global economic structure, with more and more players, also means new transport routes and modes, which naturally creates conflicts and rivalries of economic and/or political interests. This can also be observed in the case of alliances and countries that are economic partners or integrated on some level with each other.

A key factor in the complexity and sophistication of global supply chains is the emergence and spread of containerization as an economic phenomenon and activity. As a result, the time and cost implications of transport have improved by up to 90 percent (Erdősi, 2021, pp. 35-45). Such improvements have not only revolutionized global transport activities but have also had a decisive impact on the global division of labor.

During the 1990s and the first decade of the 2000s, economic geography used economic physical space as a rather general, abstract concept (Krugman, 1991). The changes of the last decades, especially the new economic geography and world politics after the end of the Cold War, have meant both more complex and simpler economic structures. The physical existence of political-economic blocs was no longer an obstacle to the transport of production. The clearer functioning of transport and logistics between the major global centers - North America, Europe, and the Far East - has led to the use of geographic space and distance as precise, not abstract concepts.

Defining the research background in this way and studying the role of economic geography led to the justification of the topic and the formulation of the research questions.

The main research themes of the thesis are based on the new economic work order, i.e. the new global division of labor, which has also brought about changes in transport routes. The changes that have taken place (new transport routes and port locations, structures, and services) have led to the emergence of other financial and logistical structures and new economic interest groups in the case of world economic blocs or regional cooperation, especially in Europe. Where the economic, financial, or even political fault lines between partner Member States may lie.

This thesis sought answers to these questions, which in practice meant, above all, rethinking trade routes between Europe and the Far East. The One Belt One Road (OBOR) or Belt and Road Initiative (BRI) concept defines the main trade routes in the Europe - Far East transport relationship under study, which are also examined in this thesis. However, the main added value of this thesis is the financial analysis of the European entry points of this transport

concept. The individual member states of the European Union as a customs union are confronted with each other along the lines of interests in terms of actual operation, customs clearance, and (onward) transport; what interests can be defined and where conflicts arise.

II. Methodology

The OBOR/BRI routes and the European transport routes are closely interlinked within the integration, they can be competitors, alternatives, or complementary routes. Following a detailed literature analysis of the development and role of the geographic and economic geography discipline, the analysis of policy and planning documentation has proved to be an important tool for an accurate analysis of the situation.

I have analyzed this policy literature and planning documentation according to the following criteria:

- The functioning of port structures
- Infrastructural and economic aspects of transport networks
- Financing
- Economic aspects of container trade
- Plan documentation/impact assessment

Of the total list of sources, 118 fall into one of the above groups. The categories identified were mainly based on existing European port relations, order, and operational hierarchy.

Semi-structured interviewing was the third methodology used in the thesis. Professionals from Belgium, Bulgaria, Northern Macedonia, Greece, China, Hungary, Italy, Slovenia, and the European Union undertook the interviews. Some of them worked in ports, others were employees of investment or export promotion agencies or were researchers or ministry officials working on the transport routes concerned.

Finally, the paper reflects on the calculation of the change in customs revenue and the 20 percent retention amounts[1] (Decision 2020/2053 of the Council of the European Union and Euratom, Article 11(5)). The paper uses Eurostat data from 2000 to 2019.[2] Depending on the period, the EU Member State was able to retain between 10 and 25-20 percent of the TOR (Traditional Own Resources) as administrative costs. It should be noted that the European

[1] Amount to be retained from customs revenue: 20 percent of customs revenue may be retained by the Member State where the actual customs activity and customs clearance take place to compensate for some administrative activity. 80 percent of the duty goes to the common budget in Brussels.

[2] Eurostat: https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2014-2020/spending-and-revenue_en

Commission has already included in its 2018 reform package for the next EU budget the idea of reducing the so-called collection cost percentage back to 10 percent. This proposal, which was proposed by the European Commission in its discussion paper Budget for the Future to national decision-makers and the European Parliament for the period 2021-2027, was not accepted by the Member States (European Commission, 2018, p. 16).

Figure 1: Percentage rate of customs retention (1970-2023)

Period	Withholding rate (percentage)
1970-2001	10
2002-2015	25
2016-2020	20
2021-	25

Forrás: Eurostat, https://ec.europa.eu/budget/graphs/revenue_expediture.html

As Member States have used different percentage rates over the above period, it is also worth calculating a pro-rata revenue for each Member State, for which the rate of 20% in force during the period under review is the most appropriate.

A key question that deserves a separate calculation is the proportion of the nominal amount withheld that the revenue generated can finance the GNI-based budget line, which is the one that requires the largest resource contribution. The GNI-based national contribution is also a balancing item, the value of which varies from year to year, but cannot exceed the ceiling set for each budget period.

Figure 2: GNI-based EU budget ceiling (percentage)

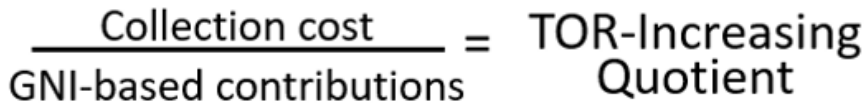
Period	GNI-based revenue ceiling (percentage)
2000-2006	1,24*
2007-2013	1,045
2014-2020	1,29
2021-2027	1,4

* The European Commission used a GNP-based calculation until 2002

Source: Halmai (2018, 10.o.), European Commission (2022)

Using these figures, I calculate a quotient of the amount withheld and the GNI-based payment.

Figure 1: TÉH - TIQ formula



Source: own calculation

This involves the economic approach that the higher the value of the retention of customs revenue - the value of the counter - the higher the customs activity, logistics, processing, and transport activity. As a value-added, this surplus is also reflected in the cost of the value-added contribution, i.e. it reduces the denominator, i.e. the GNI-based contribution, which is always more favorable for the Member State administering the duties. Therefore, if the value retained in the numerator increases, the total coefficient will also be higher.

However, the GNI-based contribution in the denominator, as a balancing item, should have a higher nominal value if the retained value in the numerator decreases. If the GNI-based contribution increases, the value of the total quotient should decrease.

Both effects increase or decrease the ratio at the same time. The higher the value of the numerator, the higher the value-added contribution is expected to be, which reduces the need for a national GNI contribution. In other words, the higher the numerator, the lower the denominator should be if we know that the EU Member State has a fixed ceiling value for seven-year cycles.

III. Research results

The first research question of this paper is whether and how the center of gravity of global trade in Europe is shifting from the traditionally large seaports of Western Europe to the Central and South-Eastern European region.

The reorganization of major European trade shipping routes since 2013 and the arrival of the Chinese global shipping company COSCO in the Greek port of Piraeus have reshaped a half-century-old trend. Piraeus has now caught up with the major Western European port structure - Rotterdam in the Netherlands, Antwerp in Belgium, and Hamburg in Germany - as the fourth largest port in terms of annual container (TEU) traffic. It has now overtaken the container traffic of older ports such as Barcelona in Spain, Germany's second most important

port; Bremen, Genoa in northern Italy and Gioia Tauro in southern Italy; and La Havre in France, on the mouth of the Seine.

The research found that the above statements are true for containerized transport and for the hub-and-spoke or transshipment sector. The shortage of containers caused by the COVID-19 crisis has led to the need for fast (but much more expensive than maritime) overland transport, mainly by rail, which also enters or leaves the European Customs Union via Central Europe to Russia and China. One of the main beneficiaries of this process was Poland via the border crossing at Małaszewicze. This was true until the end of the Ukrainian-Russian war.

The second research question in the context of possible reallocation and relocation is: what economic and financial interests can be identified in the affected regions of Western as well as Central and Eastern Europe? A particularly important question is how this shift will affect the revenues of individual Member States within the EU. What loss of operational, functional, and customs revenue can be assumed? Could the modern port and transport capacity created thanks to hundreds of millions of euros previously invested remain unused in the case of the countries affected?

Based on the formula presented and applied in the methodology, the 20% customs value remaining after customs revenue in the country of administration, the so-called "collection cost", shows a significant increase, especially in the case of Poland, but Hungary, as one of the South-Eastern gateways of the customs union, has also achieved a good result in realizing this type of revenue. These countries and these border stations and transshipment points behave like large gateway ports (Rotterdam, Antwerp, Hamburg). During their operation, they can in principle expect to face competition in the coming years, at least, not only in the distribution of customs revenue but also in the industrial processing activities that are typical of gateway ports.

However, quantifying this is difficult, as confirmed in interviews with Belgian professors Dr. Dirk De Bièvre (Head of the Department of Political Science at the University of Antwerp) and Dr Joost Hintjens (Professor of Transport and Regional Economics at the University of Antwerp). It is difficult because, in addition to the tax and customs revenues generated by port authorities, the value that port activity itself represents, such as jobs, industrial processing, logistics, transport, insurance, repair, storage, etc., are complex interdependent economic activities that cannot be separated.

The calculations showed that the Central European countries had and still have a significant and growing trade activity with the Far East, despite the political and military conflicts. Therefore, the retention of 20% of customs revenues represents an increasing share of their revenues, while Western European ports have not been able to achieve a similar increase

in the period 2000-2019. This does not mean that the big three have been replaced in nominal terms by Polish, Hungarian, Croatian, Slovenian, Greek, etc. ports or transshipment points, but it does mean that the EU Member States of Central and South-Eastern Europe have been able to take an increasing slice of the "European trade pie".

This is particularly interesting when looking at the 20-year development record of the Port of Rotterdam. Both the extension of the port to the sea (Maasvlakte 2 project) and the improvement and extension of the hinterland (Betuweroute rail freight corridor) have cost the Netherlands more than €5 billion in investment expenditure at current prices. This amount does not yet seem to be recouped, as Piraeus in Greece has become an important competitor to Rotterdam in the competition between ports for container transport between Europe and the Far East. In the second case, Germany has not fulfilled its contractual obligations by not upgrading the freight-only railway line from the border station of Zevenaar.

Customs revenue analysis

The analysis of customs revenue is carried out for the period 2000 to 2019. Between 2000 and 2001 - and of course also before 2000 - the value retained as administrative costs by the country where customs clearance took place was 10 percent.

Between 2002 and 2015, this rate increased to 25 percent, while in the period 2016 and afterward it decreased to 20 percent. The paper takes two approaches to the analysis:

1. the value calculated using the actual percentage rate

2. the value is calculated using a pro-rated percentage rate, in which case I use the current rate of 20 percent. The analysis explains the change from the 2004 base year result to the current period calculation.

The data source is Eurostat's "Total own resources".

The amount withheld from the data in the table reflects the expected values, i.e. the size of the Member State's economy and its position in trade anticipate its position in the trade of European integration and the amount thus collected.

In 2019, the three Member States with the highest amounts are, in order, Germany (EUR 1 023 million), the Netherlands (EUR 682.3 million) and Belgium (EUR 558.8 million). It is fair to say that Hamburg, Rotterdam - Amsterdam, and Antwerp are the main depositors of the top results.

This is followed by Italy (€460.8 million) and France (€443.5 million). France and Spain (€397.8 million) are excluded from the analysis because the main logistical regions of Piraeus

and the OBOR project transport routes are not French and Spanish territories, at least not directly, and cannot be considered as rival routes to the Piraeus route.

In terms of size and importance, the next country is Poland (€206.7 million), which, however, has an amount withheld as administrative costs slightly less than a third of the Dutch amount and almost a fifth of the amount withheld from German customs revenue.

Hungary's value (€50 million) is almost a quarter of Poland's, almost the same as Greece's (€59.8 million) and not far behind the share of Czech customs revenue (€71.7 million) that remains in Prague.

However, if we look at the base figures for 2004, we obtain a completely different order. The average EU growth for the period 2004-2019, not pro-rating the 10-25-20 percent figures, shows a value of 130 percent.

In comparison, the growth rate for Central European countries is outstanding. Poland comes out on top in this race, with a 550% increase over the period. Slovenia is second, thanks to Copper, with an increase of 480%, but neither Slovakia (330%) nor Hungary (276%) has anything to be ashamed of, especially when you consider that these two countries do not have a port through which the main import activity takes place and that 20% of customs revenue can stay locally.

During the same period, winners of revenue retention could no longer track the change in the evolution of customs revenue in the same way as in the 2004 base period. This is particularly interesting in the case of Germany (128%), as the port of Hamburg is considered the biggest winner after the 2004 accession, having "regained" the entire Elbe region, Poland, Hungary, or even Slovakia as an economic and trade "hinterland".

Italy's performance (112%) is even more modest, but the Belgian figure (131%) is not outstanding, especially when compared to the EU average of 130%. The Netherlands achieved the highest growth in Western Europe between 2004 and 2019, with a performance of 149%, but this is still below the Central European figures.

The ranking does not change even if all different administrative rates by period are uniformly adjusted to the 20 percent rate.

However, it is even more interesting to look at how customs revenue in Poland, Hungary, and Greece compares in nominal terms with the decline in Dutch revenue.

For this side calculation, the paper takes into account the guidance of Professor Dr. Joost Hintjens that Antwerp, the second most important port in Europe, is not expected to lose as much weight as the Netherlands, especially Rotterdam, because the shipping traffic to Antwerp as container trade connects the EU mainly with Africa and America. This trade relation is

therefore not in competition with the OBOR/BRI project, i.e. the shared resources are not affected by the value of Antwerp about Rotterdam vs. Central Europe, Greece.

As can be seen in Figure 4, and as follows from the previous data, the Dutch value is steadily decreasing compared to the Polish, Hungarian, and Greek 20% customs revenue (in which case the Greek value is the smallest or even stagnant, so it should increase in the Hungarian and Polish values). Thus, the adjusted/reduced Dutch customs revenue value should be stagnant or decreasing compared to the total Dutch value.

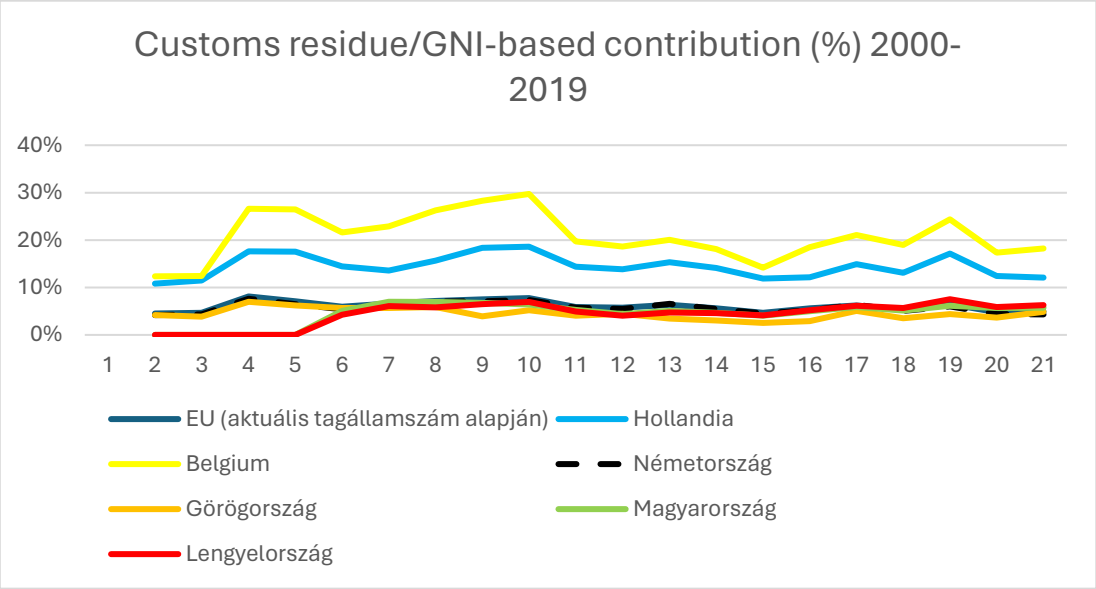
As the OBOR/BRI project exploded in 2013, first on the land route via Poland and then, with a slight time lag, the sea-land route via the Balkans and Hungary also appeared and strengthened, so the calculated Dutch value became smaller and smaller.

The second, a kind of control comparison, is worth making by combining the largest EU contribution and customs revenue. The largest Member State contribution is the GNI-based contribution. If this can be partly compensated by the remaining 20% customs revenue, it is, of course, more favorable for all Member States, especially for net donor countries.

The indicator used is the residual 20% of customs revenue divided by the GNI-based Member State contribution. As this is a ratio, there are two ways in which a Member State can be favored:

1. increases its customs revenue, i.e. the Member State has a higher nominal value of retained revenue after customs clearance by its own customs authority. Greater revenue naturally increases the role of the Member State outwards, in trade with third parties, but also inwards, as a gateway and integration level transshipment position.
2. the GNI-based contribution of the Member State to the common budget is reduced, which simply means that the Member State has to pay less into the Brussels budget.

Figure 4: Customs residue/GNI-based contribution (%) 2000-2019



Source: Eurostat, https://ec.europa.eu/budget/graphs/revenue_expediture.html, own calculation

These show that the ratio is naturally higher for those countries that are strongest in the gateway position. Since GNI-based contributions, although the largest item in the Member State contribution, act as a balancing item for the EU budget, it is of interest for the Member State to be able to contribute as much as possible from its other contributions.

It is also worth adding the other contribution to the Member State budget before the balancing act: the VAT-based revenue sources. This source represented a similar order of magnitude in the EU budget as customs revenue. However, it is safe to say that activities such as processing and logistics activities in the Port of Rotterdam or Port of Antwerp are based on incoming raw materials and semi-finished products, so the higher value-added occurs when the amount and value of the customs duties are higher.

On this basis, a net donor Member State is doubly hard hit by falling customs revenue:

- it can retain less for itself
- a reduction in processing activity for semi-finished products[3]
- also increases the GNI-based contribution to the common budget.

[3] It is important to underline that, as the Greek port of Piraeus and the Polish border post of Malaszewicze are mainly containerized, this type of trade is an alternative or competitor to Rotterdam and Antwerp and therefore faces the problem of declining economic activity and revenue for western ports. In the analysis of bulk and energy carriers, it is not the OBOR/BRI project that is essentially playing a rival role, but Trieste (outside OBOR/BRI) for example.

Meanwhile, the less developed Member States along the OBOR/BRI route - such as Greece, Hungary, and Poland - may face the opposite impact to the more developed partner countries with important ports.

- Increasing retained customs revenue means increasing national budgets.
- manufacturing and logistical activities can and do increase, so in addition to customs revenues, the amount of added value for the emerging Member State also improves[4].

Ports of Rotterdam and Antwerp, which are prominent in terms of EU-wide trade and trade with external partners, have seen their performance deteriorate significantly due to the proportionately faster growth of GNI-based EU budget payments than customs retention revenues. This decline is mainly observed during recessions and crises, which when analyzed in nominal terms and the resulting trends, shows the relatively higher budgetary contribution loaded on them in the face of declining customs revenue.

For the other countries - this is also true for Germany in addition to the emerging countries - it seems to be stable at around 5 percent until 2019, which, following the increasing GNI contribution, implies that the revenue from customs retention also follows proportionally the change in GNI contributions.

I accepted the second hypothesis, as the figures, and especially the ratios, show the steadily increasing role and financial performance of the Central European region in trade, especially in Europe - Far East.

Finally, the third research question was formulated as follows: could a possible reorganization of trade routes in Europe lead to a new regional order in the European Union? In other words, could the classification and positioning of the regions concerned as center-semi-periphery-periphery change because of trade routes? What role does the EU's leading economic power, Germany, play in these processes?

Through interviews a study of the existing European transport routes and a walk along the East-West Corridor VIII and the North-South Corridor X, the following conclusions were reached.

The reorganization of the use of the main trade and transport routes, i.e. the Trans-European Transport Network (TEN-T), does not mean a reorganization of the centre-semi-

[4] We can also talk about logistics activities in Serbia. Not only are new tracks being built at Belgrade to serve additional trade needs (Belgrade - Marshalling yard with 120 tracks at present), but also India/India in the Serbian region has achieved significant economic growth thanks to its status as a logistics hub. It is here that the TEN-T network "X." Corridor X/A continues in the direction of Szávaszentdemeter/ Sremska Mitrovica - Zagreb, while the northern branch X/B. covers the section Újvidék/Novi Sad – Szabadka/Subotica - Budapest.

periphery-periphery, nor does it prevent it. As the interviewees pointed out, trade corridors alone are not enough to boost the development of a region, complementary activities such as logistics, distribution, manufacturing, etc. For this to happen, a new trade corridor must be created. All in all, therefore, a new corridor is a necessary but not sufficient condition for a change in the three economic development patterns described above.

Germany's role in the development of transport routes can be seen mainly in the development of the European Corridor IV - X. The two main endpoints of the Europe - Far East trade axis are Duisburg in Germany and Shanghai in China. It is in the interest of both parties to have several, but independent, routes between the two endpoints. These options offer not only an efficient organization of transport but also a response to strategic and security policy issues. Whether it is the crisis in Yemen and the vulnerability of the Bab-el-Mandeb, the war-zone stoppage caused by the Ukraine-Russia crisis, or the blockage of the Suez Canal by the container ship Ever Given in March 2021, all have shown that both sides have an interest in developing and operating new routes. It is therefore understandable why the large investments in COSCO's transshipment port of Piraeus to ensure a stronger gateway character are constantly confronted with a German presence; both on the financing side and on the investment/contractor side. Not only have EU IPA pre-accession funds provided financial resources for Serbia for rail developments along Corridor X, but also, for example, the construction of the viaducts along the Belgrade-Novdiv railway line was carried out by Peri GmbH, the world's largest scaffolding company, while the technical supervision was also carried out by a German company, DB Engineering & Consulting GmbH.

In addition, German companies do not want to be left behind in the transport and distribution of containers within the EU. To this end, Deutsche Post DHL Group is already interested in the possibilities of operating the Piraeus - Skopje - Belgrade - Budapest - Duisburg route.

Lastly, in addition to the activities and plans directly concerning Germany, there are also indirect but suggestive backlogs. Returning to the second research question, it is important to underline that the Dutch Betuweroute rail freight route has not been continued by Germany, forcing container trains to use the old railway lines shared by passenger and freight traffic to Duisburg and beyond to the Central European region. The result of this move, a kind of breach of contract on the part of Germany, is that the southern and eastern routes, as well as the port of Hamburg and its hinterland connection, have been strengthened to the benefit of Germany and the detriment of the Netherlands.

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V. List of own publications on the subject

Miklós G. (2023) A közép-európai kereskedelmi útvonalak és az EU-s tagállamok vámbevételi közötti kapcsolatok in Dr. Koncz I. & Szova I. (szerk). Húsz éve az európai nemzeti tudományosság és a fiatal kutatók szolgálatában, kiadja a Professzorok az Európai Magyarországért Egyesület, Budapest – Miskolc (2023), ISBN 978-615-5709-19-7, pp. 162-178.

Miklós G. (2024) Relations between the Central-European Trade Routes and Revenues of EU Members, PressAcademica Procedia, Istanbul, Turkiye, DOI: 10.17261/Pressacademica.2023.1846, ISBN 978-605-06192-8-7, PAP-V.18-2023(4)-p.20-30

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VI. Explanation of words and concepts

Betuweroute is a major Dutch railway project realised between 1998 to 2007, for freight only. It was designed to carry 10 pairs of freight trains per hour, up to a maximum of 740 meters, between the port of Rotterdam and Duisburg in Germany. By 2007, the cost had reached €4.7 billion, more than three times the €1.1 billion investment originally planned. Germany has not built the part of the border station between Zevenaar and Dusiburg that is part of it.

COSCO (China Ocean Shipping Company) is one of the largest Chinese-owned companies providing both container shipping and port services in the global economy. In Europe, it is a minority owner with ownership or operating stakes in many ports. Its main hub is the port of Piraeus, Greece, where it has been the majority owner and sole operator since 2013-2016.

Gateway-type port activity: the most important characteristic of this type of port is that it has a very strong hinterland economic and commercial link. The port is both a processing industrial center and the main transshipment/logistics station for (onward) transport to the hinterland. Successful large gateway-type ports are accessible by inland waterways (rivers, rivers), both by rail and road and even by pipelines.

Hub-and-spoke port activity: the port mainly performs distribution functions in containerized transport. In other words, the port has a very strong transshipment and redistribution role. They are primarily established along the major East-West freight routes and serve the regional distribution centers with small feeder vessels. In the hinterland, i.e. towards the hinterland of the port, the port's commercial activity is less intensive or not significant at all. It is also called transshipment.

The Maasvlakte 2 port project was a major development in the Netherlands in the first half of 2010. It is mainly seen as a project for container ships, which will open the sea and extend the Rhine estuary. The new port, capable of accommodating the deepest diving vessels, costs more than €1.5 billion at current prices.

TEU (twenty-foot equivalent unit) equal container type. The 20-foot-long, 8-foot-high containers have a volume of about 34 m3. Containerized transport revolutionized global transport from the 1960s onwards, as it was possible to switch between different modes of transport (sea and river, rail, road, and even air) in a fraction of the time it used to take to transship. The larger units are transported in 2×TEU, or FEU (forty-foot equivalent unit), but the calculations and statistics are still given in TEU.

Transshipment port activity: the port mainly performs distribution functions in containerized transport. In other words, the port has a very strong transshipment and redistribution role. They are established along major East-West freight transport routes and serve regional distribution centers. In the hinterland, the port's commercial activity towards the port hinterland is less intensive or insignificant. It is also called hub-and-spoke.