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The Baltic Sea Tunnel between Sweden and Germany – a qualitative analysis of the economic potential for the Euroregion “Pomerania”

Introduction

An effective and cost efficient transport system is vital to the European economy. Good connections all over Europe form a precondition for growth and prosperity. The European Union (EU) set out its accordingly policy in the guidelines for the development of the trans-European transport network. Herein the planning, development, and operation of trans-European transport networks is seen as a means to contribute to “the smooth functioning of the internal market and the strengthening of economic, social and territorial cohesion”.¹ In the end basic goals of the EU policy are supported, as a well-developed transport infrastructure allows “the seamless, safe and sustainable mobility of persons and goods, ensuring accessibility and connectivity for all regions of the Union, and contributing to further economic growth and competitiveness in a global perspective”.²

An operational plan is stated in the Roadmap to a Single European Transport Area. By 2050, a European high-speed, dense railway network in all Member States should be completed and “the majority of medium-distance passenger transport should go by rail”.³ In the frame of the Trans-European Transport Networks (TEN-T) “core network corridors” were defined to facilitate the coordinated implementation of

¹ European Parliament/European Council: Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No. 661/2010/EU, p. L 348/1.

² *Ibidem.*

³ European Commission: Roadmap to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System, Whitepaper, Brussels, 28.3.2011, p. 9.

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a European integrated transport infrastructure. One of these corridors is the Scandinavian-Mediterranean Corridor building the “north-south axis for the European economy. Crossing the Baltic Sea from Finland to Sweden and passing through Germany, the Alps and Italy, it links the major urban centres and ports of Scandinavia and Northern Germany to continue to the industrialised high production centres of Southern Germany, Austria and Northern Italy”.⁴ At the moment a direct connection between Sweden and Germany via a railway tunnel is not part of the Scandinavian-Mediterranean Corridor planning. But there is a strong interest, especially from the Norwegian side, to establish this idea. For the involved regions this idea seems to be very attractive as it is promising better accessibility, new jobs through massive investments, international attention and a series of economic and societal gains.

1. Motivation and aim of the study

Mega projects – especially large scale transport infrastructure investments – obviously can play a major role in the economic development of a region. The idea of a tunnel between Sweden and Germany, the Baltic Sea Tunnel, would be such a mega project.⁵ But beyond this basic assumption, the question arises concerning the risks and benefits of the realisation and operating of the Baltic Sea Tunnel. From a microeconomic point of view – this means an individual personal perspective – this question is generally easy to answer: A single user will utilize the transport facility, “up to the point where the willingness to pay is just equal to

⁴ European Commission: Infrastructure – TEN-T – Connecting Europe, online: http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/index_en.htm (26.03.2014).

⁵ Mega projects are a) colossal in size and scope, b) captivating because of the project size, c) costly, as they typically cost at least \$ 250 million to \$1 billion, d) controversial between several stakeholders, e) complex, which breeds risk and uncertainty, f) laden with control issues; according to K.T. Frick, *The Cost of the Technological Sublime: Daring Ingenuity and the New San Francisco-Oakland Bay Bridge*, in: *Decision-making on Mega-projects: Cost-benefit Analysis, Planning and Innovation*, eds. H. Priemus, B. Flyvbjerg, B. van Wee, Edward Elgar, Cheltenham 2008, p. 240f.

the price that has to be paid”⁶ for the transport. Thus, the “benefit for the user is expressed exactly by the revealed consumer surplus”⁷.

From a macroeconomic point of view the benefits for a region will exceed the sum of the benefits for individual users. In this regard it must be analyzed how a large scale transport infrastructure investment is able to unlock the economic power of a region. On the other side, mega projects are connected with massive risks – just think of the British-French Channel Tunnel, which opened 1994 after a construction period of five and a half years (December 1987 to June 1993) with a construction cost overrun of 80%.⁸ Therefore the decision makers need a concise and transparent framework for the structured analysis of the economic effects. With the help of the framework, benefits have to be predicted seriously. Over-optimistic estimates have to be avoided. As the Baltic Sea Tunnel project currently is in its infancy status, such a framework can only represent a qualitative model suited to a long-range planning situation. The initial use and discussion of a framework in this sense is subject of this article. The outcome should instantly be used in the current preparation phase of the Baltic Sea Tunnel project.

2. Methodology

This study fits into the broad debate about the wider economic benefits from transport infrastructure investments.⁹ As the Baltic Sea Tunnel as a mega project will have the potential to change the structures of the affected region, a framework is needed, that is able to differentiate

⁶ R.W. Vickermann, *Cost-benefit Analysis and the Wider Economic Benefits from Mega-projects*, in: *Decision-making on Mega-projects...*, p. 67.

⁷ *Ibidem*.

⁸ See B. Flyvbjerg, N. Bruzelius, W. Rothengatter, *Megaprojects and Risk: An Anatomy of Ambition*, University Press, Cambridge 2003, p. 42.

⁹ For an overview see the discussion in R.W. Vickermann, *Recent Evolution of Research into the Wider Economic Benefits of Transport Infrastructure Investments*, Discussion Paper No. 2007-9, OECD International Transport Forum, Joint Transport Research Centre, December 2007.

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between the different parts of the Euroregion “Pomerania”.¹⁰ This differentiation is necessary because of the differences in various factors like markets, sectors, and supply of labour. As a framework for the discussion and analysis of wider economic benefits from large-scale transport infrastructure projects, the model of **Lakshmanan** is used, see Figure 1.

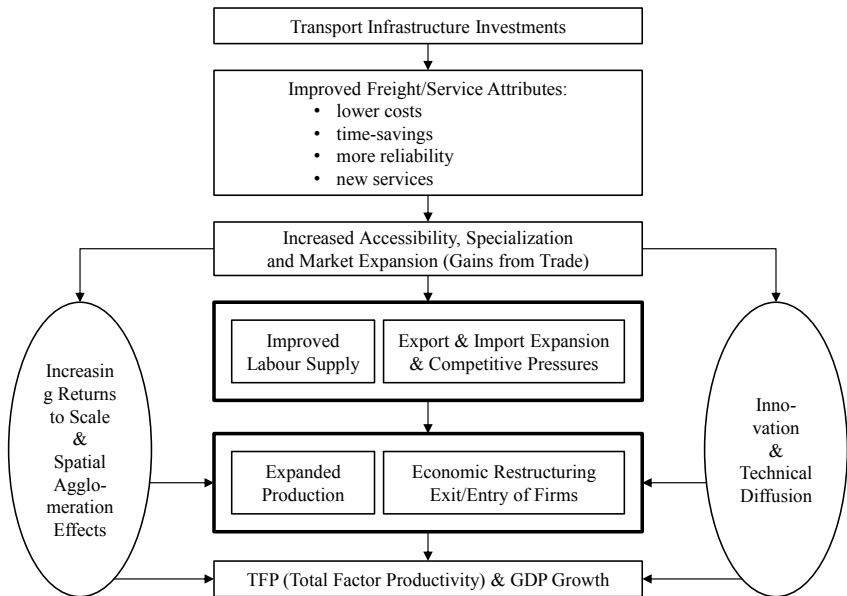


Figure 1. Model for wider economic benefits from transport infrastructure investments

Source: T.R. Lakshmanan, *The Wider Economic Benefits of Transportation*, An Overview Discussion Paper No. 2007-8, OECD International Transport Forum, Joint Transport Research Centre, December 2007, p. 11.

¹⁰ The Euroregion “Pomerania” spans the Northwest of Poland and the Northeast of Germany, covering 2.4 million inhabitants and 35,500 km², see Pomerania.net: Euroregion – Fundamentals, online: www.pomerania.net/main.cfm?l=en&rubrik=5&th=30#1.

The model shows the impact relationships between the original transport infrastructure investments, the affected levels of economic factors, down to the implications for productivity and gross domestic product (GDP) growth. This chain of effects is intensified by two mechanisms of innovation and spatial arrangements (in the oval boxes) creating conditions “which enhance economic performance, and promote total factor productivity and endogenous growth”.¹¹ The improved freight and service attributes built the direct effects of the transport infrastructure investment. Time-savings for example lead to an increased accessibility which in turn results in an expanded import of goods as well as an increased labour supply through job-commuters. The entry of new firms and the growth of existing companies lead to an expanded production. But also the market exit of firms could be an effect due to higher transparency and competition.

This framework is used in this article to structure the discussion about the benefits of the proposed Baltic Sea Tunnel. Some important aspects are discussed, based on a literature review and expert interviews. Results from these discussions will affect the current political discussion about the Baltic Sea Tunnel project as well as the further refinement of the economic benefits framework. In the end the article should support the development towards a strategy for the Pomerania region in coping with the Baltic Sea Tunnel right from the very beginning.

3. The Baltic Sea Tunnel – basic idea

Scandinavia is investing in modern rail infrastructure. Norway decided in 2013 its InterCity-project, the new high-speed rail (HSR) system connecting Oslo to the medium sized cities around the Oslo fjord. Its main subproject is the Folloline, from Oslo to Ski 23 km south of Oslo. The construction of the 19.5 km Follo Tunnel just south of Oslo is about to start. This section the InterCity project will have capacity for a speed up to 250 km per hour. It will be an important part of the main transportation corridor south towards the Swedish border and the European

¹¹ *Ibidem*, p. 12.

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continent. Sweden is even more ambitious than Norway: A new line between Stockholm and Göteborg and later also Malmö is planned for a speed up to 320 km per hour. The construction starts in 2018. Denmark has similar ambitious plans: The Danes' most important project is the 18 km Fehmarnbelt tunnel between Rødby and Puttgarten in the German federal state Schleswig-Holstein. Construction is planned to start up in 2015 and to finish in 2021. The problem with Scandinavian rail strategies and plans however is that the projects are not coordinated and thus not particularly well connected cross border. The danger for creating and spending huge resources on suboptimal transportation systems is therefore significant; if the Scandinavian rails are not well connected, and if not better connected, the lorry traffic will continue to grow.

There is only one key cross-border fixed link: the Öresund Bridge between Copenhagen and Malmö, Swedens third largest city. The bridge which is an iconic engineering achievement is a combined train and road bridge. After the Öresund Bridge opened in the year 2000, the integration with Malmö and Copenhagen has been remarkable, much stronger than even the most optimistic prognoses. The bridge was the first fixed link between Sweden and Denmark. It is connecting both the transportation systems in Norway and Sweden to Denmark and thus also to the European continent. The Öresund Bridge became soon very popular, both for the Scandinavian transit traffic and the local and regional transportation market. It has made the labour and housing market of Copenhagen and Malmö grow together. It has also become a major economic success, and it has made the owners of the bridge eager to look for other fixed link projects like the Fehmarnbelt tunnel. However the success of the Öresund Bridge has become its own major threat: the bridge is in the rush hours practically at its capacity. The Öresund and Copenhagen area has thus become a bottleneck for further integration of the transport systems in Scandinavia. Here lies the major challenge for the Scandinavian rail systems, as the flow of passengers and freight is expected to double by 2030. What planners in Scandinavia agree on is that the Öresund Bridge does not have the capacity to handle this on rails, especially if it comes in addition to the local traffic that is expected to continue to grow

with the urban integration between the labour and residential markets of Copenhagen and Malmö. This has forced more of the freight volumes from trains to trucks between Scandinavia and the European continent, since there is still more available capacity on the roads.

At the same time Norway and Sweden are investing heavily in modern rail systems. These investments have in common that they seem to be ending up in the bottleneck situation in Öresund. The danger is thus high that the potential economic benefits for the environment and society in Scandinavia – in particular the benefits from reduced emissions – are not reached because of a lack of capacity over the Öresund Bridge. This insufficient coordination on national level transportation planning has worried regional and local planners in Scandinavia during the last decades. There are several reasons, mainly historical and political. In the COINCO projects¹² that have been going on since 2005, the EU sponsored planning perspectives have tried to overcome this problem of Scandinavian fragmented planning. The COINCO projects have had a more flexible mandate and one has tried to see the three Scandinavian countries as one logistic system. The COINCO North (I and II) project has in particular investigated the South East Norwegian/West Swedish transportation systems, including the Öresund region system as one system. Last year, the EUs TEN-T program recognized this as an important corridor that should be seen and planned as one whole system, putting Oslo for the first time on the map as the northern ending point.

But even the COINCO North project has been based on conventional thinking. This is its limitation to planning the corridors over the Öresund, through Denmark and into Germany, through the Fehmarn belt. The problem is that this “Scandinavian corridor” is not going to be

¹² Since 2005 the EU, regions in Germany and the Scandinavian countries have been working on the project COINCO (Corridor for Innovation and Cooperation). COINCO North I and II are two generations of EU Interreg projects. They focus on the high-speed train connection between Oslo and Malmö. COINCO North I ended in June 2011, COINCO North in October 2014. COINCO South is a private initiative. It focuses on the southern part of the corridor. The aim is to bring the original partners of Mecklenburg-Vorpommern, Brandenburg and Berlin together again with their Scandinavian partners. For further information see: www.coinco-berlin.de.

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efficient and able to handle the next decades of growth, if the capacity over the Öresund is not significantly increased also. There is however no plan on the Danish side to do so. Instead the infrastructure investment is targeted to improve the internal local and regional public transportation in the Copenhagen area. The Danish strategy is to pull the other Danish regions closer to Copenhagen, with the modernising of the rail infrastructure internally in Denmark. An idea of a new metro line under the Öresund to Malmö, which would have increased the capacity of the Öresund Bridge, has also been put in the drawer. There seems to be a deliberate and quite rational strategy on the Danish side to keep the capacity over the Öresund limited since the Copenhagen area is not able and does not really want the strong growth of transit traffic from its neighbour countries. This forces the traffic flows to and from Scandinavia to take different routes to and from the continent. Today logistic companies all over Europe have to choose transportation carriers accordingly. The ferry traffic between North East Germany, Western Poland and Sweden is growing steadily, correlated to the Scandinavian and German economic growth. This has led to an increase of lorries and truck traffic on the roads in Northern Germany and Scandinavia, with all the emissions, increased accidents and congestions that follow.

In Norway the infrastructure debate has up to now been similarly focusing on internal domestic questions. But compared to Denmark, which is flat and small, the overall macroeconomic question in Norway, which is geographically vast, with deep fjords and high mountains, has been if it makes sense to invest 60–70 billion Euros in HSR standard modernisation of the rails and dig in total approx. 500 km tunnels through the mountains and under the fjords in Norway and to the cities of Trondheim, Bergen and Stavanger. These are the major cities besides Oslo, but they are relatively small of about 250,000–300,000 inhabitants in each.¹³ The money is for sure there, but that does not mean that this is a smart way to spend it. Norway has become one of the richest countries in the world. Still such a mega investment would only represent 10%

¹³ See K.O. Halvorsen, *Die Skandinavische Eisenbahn-Infrastruktur und Deutschland*, "Eisenbahntechnische Rundschau (ETR)" 2014, Vol. 63, No. 3, p. 29.

of the Norwegian 700 billion Euro petroleum fund. This leads to the latest COINCO project; the COINCO South. The idea here is to challenge the previous conventional thinking. It starts with the following questions: Is it better for Norway to spend “only” 15–20 billion Euros in a 100 km tunnel between Sweden and Germany, which is outside Norway? Is it better to reach 500 million Europeans, rather than digging 500 km of tunnels inside the country and reach 2.5 million Norwegians, who are well connected by frequent flights anyway?¹⁴

This is the background for the COINCO South initiatives and the newly created association of industrial players, academics and regions.¹⁵ COINCO South is looking into the alternative route to Germany and the European continent. Instead of leading the flows through Denmark, the COINCO South initiative is looking into a direct fixed link of a 100 km tunnel between Trelleborg to Sassnitz, over the island of Rügen to Stralsund and then link up to the Rostock-Berlin rail system in the West, and the Polish, and Baltic rail systems in the East.

4. Analysis of the economic effects

4.1. Basic assumptions

As a starting point for a first analysis it can be assumed that both the Norwegian and the Swedish HSR systems – around Oslo and from Stockholm towards Göteborg and Malmö – will come into existence in the next decades. These projects are part of the national transportation plans. Furthermore one can assume that the two systems will merge into one system, meaning that the 100 km between Halden in Norway and Uddevalla in Sweden – “The Missing Link” – between Norway and Sweden will come into place. Norway has the best financial situation and the strongest incentive to make these investments happen.

Furthermore it can be assumed that once the international financial markets see that the Norwegian and Swedish systems are merging into

¹⁴ See *ibidem*, p. 30.

¹⁵ This association, the Cooperation on Infrastructure in the Nordic Corridors (COINCO), has been set up in July 2014 and is based in Berlin.

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one, and given the very strong and stable economies of Scandinavia and Germany, there will be sufficient economic interest for an interesting long term, safe investment project. In other words; is it assumed that in the world there is enough interest to create a similar consortium such as the one behind the Channel Tunnel project. For all we know, it could be the same kind of model for the Öresund Bridge. It could also be a substantial amount of Norwegian petroleum fund money involved in this – in combination with private pension funds from all over the world. The project itself could be designed as a sort of public-private partnership – in combination with some kind of a “build–operate–transfer” (BOT) model, where the tunnel is transferred back to Sweden and Germany after, let’s say 80 to 90 years. The point is that the tunnel will not be financed by the taxpayers budget or take resources from other public infrastructure projects in the same period.

For now we focus on the most important economic benefits of large-scale transport infrastructure projects based on Lakshmanan’s model. These are the indirect effects tied to the construction phase of the Baltic Sea Tunnel. They stand for the short term effects, which would nevertheless last for a 6–10 years planning and realisation phase. Then, some of the direct effects in the long-term are analysed. Firstly, the improved freight attributes are regarded as a major potential factor. They are closely related to increased accessibility. Next, the effects on the labour supply side are discussed. Finally, some aspects of the economic restructuring caused by the tunnel are highlighted. An analysis of the other factors of the model has to be left for further discussions. For example, concerning the innovation factor the urban agglomeration effect on Malmö, Skåne and the University of Lund in the South Western part of Sweden can play an important role. In Lund it has been decided to build the large ESS infrastructure,¹⁶ which will bring scientists and researchers from all over Europe to Lund. It could bring this strong region within two to three hours from Berlin and Szczecin and make them merge into this strong scientific community.

¹⁶ ESS – European Spallation Source. Pan European material science research facilities in Lund. Planned to be completed in 2018–2019.

4.2. Effects during the investment phase

The main short term effects in the investment phase are employment effects caused by the necessary planning and construction work. For a rough estimate, the planning cost of traffic infrastructure amounts to 10% of the total investment of 20 billion €. 10–20 jobs per year are estimated for every one million € of planning costs. Based on the 2 billion € figure this would lead to 20,000–40,000 man-years during the planning phase.¹⁷ But as the planning activities normally are realised by specialised engineering companies coming from major industrial locations, national and international, there are only minor regional effects to be expected in this respect.¹⁸ This is different to the construction phase. Employment benefits occur in the first place in the construction sector and construction materials supplying industries. In addition to that employment effects are particularly large in transportation and warehousing, business and professional services, stone and clay products, wholesale trade, fabricated structural metal products, and non-metallic minerals mining.¹⁹ These direct effects accounts for 509 jobs per 100 million € on a yearly basis spent during the construction phase.²⁰ This impact is strengthened by a second round of employment effects “in the production sector in response to the demand for additional inputs required by construction materials supplying industries”²¹ as well as further effects reflecting an induced increase in the general demand for goods and services.

¹⁷ According to M. Gather, *Regionale Effekte der Fernstraßeninfrastruktur auf die wirtschaftliche Entwicklung in Thüringen*, Erfurt University of Applied Sciences, January 2003, www.fh-erfurt.de/fhe/index.php?eID=tx_nawsecuredl&u=0&file=fileadmin/Material/Institut/Verkehr_Raum/Download/Projekte/2003/reg_eff_fern_stra_2003.pdf&t=1404648774&hash=551e2f0f78518652e554111f22f65159 (15.05.2014), p. 7f.

¹⁸ *Ibidem*.

¹⁹ *Impact of Transport Infrastructure Investment on Regional Development*, OECD, Organisation for Economic Co-operation and Development OECD 2002, www.oecd-ilibrary.org/transport/impact-of-transport-infrastructure-investment-on-regional-development_9789264193529-en (23.05.2014), p. 48.

²⁰ Figures according to M. Gather, *op.cit.*, p. 9; monetary figures are converted from Deutsche Mark (DM) to EURO (€).

²¹ *Impact of Transport...*, p. 48.

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This resulting indirect employment can be calculated by a multiplier of 1.7 for rail investments.²² The complete calculation for an 18 billion € investment for the Baltic Sea Tunnel is shown in Table 1.

Table 1
Direct and indirect job effects of the Baltic Sea Tunnel

No.	Attribute	
1	Direct jobs per 100 million €	509
2	Multiplier	1.7
3	Indirect jobs per 100 million €	865
4	Jobs in total per 100 million €	1,374
5	Construction period in years	6
6	Total investment (construction) per year in 100 million € p.a.	30
7	Jobs in total per 3 billion € p.a.	41,229

Source: adapted from M. Gather, *op.cit.*, p. 9; own calculation.

By deducting the planning costs, the construction costs amount to 18 billion €. Given a construction period of six years this leads to investments of 3 billion € per year. As the calculation shows, an employment effect during the estimated six-year construction phase of more than 40,000 jobs would be possible. This result has to be put into perspective. First, the job figure has to be split for the construction work on the Swedish and the German side. Cutting the figures into halves would roughly lead to 20,000 jobs on both sides. Second, the calculated figures do not reflect regional effects only. European competition law and tendering rules will lead to the situation that regional German and Polish as well as Swedish suppliers have to compete with other national and international competitors. Nobody can say today how the contracts will be allocated. But due to locational advantages it can be taken for granted that a huge part of the transaction volume will cause substantial economic effects in the Pomerania region. One example should provide evidence for this assumption. The huge amount of chalk, which would be excavated,²³ will

²² Figure according to M. Gather, *op.cit.*, p. 9.

²³ The bedrock especially to the German side of the Baltic Sea is mainly represented by lime stones and chalk; see *The Shortcut – Geological and Technical*

find a market in the cement industry that needs enormous amounts for the construction of the all cement for the Baltic Sea Tunnel. Due to their logistical and accordingly cost advantages, local German and Polish companies in this sector can play a major role here.

Also in the case when local companies are not engaged strongly in the construction works, there will be a high demand for local workforce. To meet this demand will be a major challenge to a systematic and professional regional development. In the case of the Channel Tunnel the French region Nord-Pas-de-Calais – in contrary to the Kent region on the English side – met this challenge by initialising local training and preparation of construction workers, leading to a larger local employment impact during the construction phase.²⁴

4.3. Improved freight and increased accessibility

Improvements of the freight and service attributes are obvious. If we start with Norway, it is pretty obvious to suggest the following hypothesis; the present transportation trends of strong growth in trucks on the roads will be reversed. Instead the transfer from trucks and road transportation back to trains and rails will come. Today more than 2,500 trucks are passing the Swedish/Norwegian border on average, every day. The increase has been 40% since 2007. A rough estimate is that if the present trend continues, the number of trucks will double to 5,000 by 2030. If the most ambitious scenario from “The Scandinavian 8 Million City”²⁵ and the COINCO North projects to minimize the duration to 2.5 hours between Oslo and Copenhagen with HSR is realised, the Baltic Sea Tunnel will also bring Oslo and Berlin within a reach of 4–5 hours. Accordingly time savings will be realised in the direction of Polish destinations,

Aspects of a Railway Tunnel from Southern Sweden to Northeastern Germany, COINCO GmbH, 2012, p. 6.

²⁴ See O. Kveiborg, *Economic Effects of Large-scale Infrastructure Projects*, Belt Trade/Dansk Industri 2013, p. 19. In the Kent region only 50% of the construction employment was recruited locally, compared with 90% on the French side.

²⁵ The term “The Scandinavian 8 Million City” refers to the fact that 8 million of Scandinavia’s 19.3 million inhabitants live in the corridor between Oslo and Copenhagen, covering three countries and four metropolitan cities, including 2 capitals.

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mainly Szczecin. That will make the train – if one measures the time from city centre to city centre – more competitive than the flights, especially if one includes transportation to the airport, the need to be at the airport an hour before the flight etc. Today there are about 20 flights alone between Oslo and Berlin. This number will also probably go down, but how much is difficult to say, that depends on the consumer preferences and psychology.²⁶ In Sweden one will see a similar effect, but of course stronger since it is closer to tunnel.

As a result from the Baltic Sea Tunnel, transport improvements leading to higher efficiency in delivery time, cost and reliability can be expected. An according increase in overall cost savings for businesses will finally cause higher productivity and GDP growth. This will especially be true for the Baltic Sea Tunnel, as it will emerge as a congested route, predominantly used for business, tourism, and freight. On the other hand it has to be questioned whether the Pomerania region can benefit from these improvements. The freight traffic perhaps would mainly transit to Rostock or Berlin. Thus, positive economic effects will depend on the capability of existing or new companies in the logistics sector to position themselves as a partner in the logistics value chain. For the tourism sector time savings will be a big advantage in any case. Tourists from Sweden and Norway would be able to travel easily and comfortable to the Pomerania region, whereas this effect would be higher for the German side compared to the Polish part. But this would only come true, if a station in the Stralsund area will be built – which absolutely cannot be looked upon as certain from today's perspective.

4.4. Labour supply

The starting point to discuss labour supply aspects refers to transport cost and accessibility. With reduced transport costs, “labour markets become larger as commuting times are reduced and firms have access to

²⁶ Some people have fear of flying, but there could also be some who would have fear of travelling in a long underwater tunnel. Millions have however by now travelled by train in the Eurotunnel without fatal accidents.

a larger labour supply”.²⁷ As wages in the Pomerania region are lower than in Southern Sweden and in the Berlin region, more workers from the Pomerania region can find it attractive to work in Southern Sweden or even in Berlin via the improved local tunnel connection railway infrastructures. For the employers in the Pomerania region on the other hand it could become necessary to pay higher salaries to retain qualified staff. Thus, from the Pomerania point of view an increased accessibility could lead to a reduction of qualified labour supply.

4.5. Economic restructuring

The quantity and quality of the regional employment normally is an important objective at local government level. For a sustainable positive economic effect, the economic restructuring in the affected regions will be critical. “For the industry in a given region, time and cost savings as well as gains in accessibility and reliability, arising from the transport infrastructure would allow productivity gains to be achieved by improving their production and distribution. Wider access to the market will create both new business opportunities and increased competition, leading to further increases in profitability”.²⁸ Several potentials seem to be realistic:

- First of all one will probably see a bundling dynamics on both sides of the tunnel: Since the tunnel is only for trains, the cargos must be loaded from trucks on to trains to be transported through the tunnel. This would stimulate a transformation of the harbour areas in the cities of Trelleborg and Rostock, Stralsund and Sassnitz. But also the development of a large regional transport hub with focus on Poland and the Baltic States should be taken into account as a business perspective.
- For Stralsund as a tourism destination the tunnel itself could become an additional attraction. The example of the Eurotunnel shows, that there was an increase in one-day tourism with the

²⁷ R.W. Vickermann, *Cost-benefit...*, p. 72.

²⁸ O. Kveiborg, *op.cit.*, p. 13f.

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effect of several new hotels being constructed.²⁹ For Stralsund with its modern hotels the chance could result to attract not only tourists but also business and conference visitors.

- Agglomeration of companies in a special economic area is imaginable in the technical repair and maintenance sector. Existing businesses in the offshore area can be strengthened, supported by a qualified labour force resulting from local universities in the Pomerania region.
- Additional economic potentials result from the idea to use the tunnel not only for freight and passenger transport, but also for data and energy transmission. These aspects shall not be discussed here in further detail, but they build attractive business perspectives.

Economic growth as a result of the Baltic Sea Tunnel will not be an automatism. The location of new companies as well as the growth of existing organisations has to be managed by the local authorities. Especially the proper functioning of other local support infrastructures plays an important role. Again the example of the Channel Tunnel is helpful. In the English Kent region an initiative “Locate in Kent” was established “with the purpose of attracting investments and business locations in the region”.³⁰ Together with the usage of European Structural funds and a joint French-British marketing project a successful regional economic development process had been initiated.

Conclusions

The objective of this article was to discuss some basic economic effects from the proposed Baltic Sea Tunnel. For this purpose the relevant literature was studied and a suitable and reputable framework was identified. Than some literature related to the interaction between infrastructure investments and regional economic impacts were studied and findings from the literature were highlighted.

²⁹ *Ibidem*, p. 21.

³⁰ *Ibidem*, p. 19.

From the literature study it is clear that economic development of a region will not come automatically with the construction and operation of the Baltic Sea Tunnel. Local growth has to be managed and is therefore closely tied to local initiatives. Trains through the tunnel will be faster, cheaper, greener and thus more competitive. The economic effects, chances and risks will be manifold. More studies and research have to be conducted. The findings from this article could act as a basis for several scenarios, as the theory and concepts of scenario planning form a widely accepted instrument for decision-making, especially in the public sector. Herewith a cooperation of the regional Swedish, Polish, and German communities seem to be mandatory to have the most useful regional effect out of the mega project Baltic Sea Tunnel.

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Michael Klotz

School of Business Studies
Stralsund University of Applied Sciences

Knut Olav Halvorsen

Senior consultant for Norway and Scandinavia
DBI Deutsche Bahn International GmbH
Chairman COINCO e. V.