



EUROPEAN UNION  
European Regional Development Fund



# **FinEst Link**

**Feasibility Study – Final report**

**WP 2**

**Appendix 5.**

**Wider Economic Impacts  
– background and methods**

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## 1. Literature review

Transport connects people, businesses and resources. The demand for transport is derived demand reflecting the economic activities of firms, households and individuals. Changes in the transport system, in turn, have impacts on the economic development.

### **Transport and the economy**

In the case of railway investments shorter travel times and improved service levels (density and improved travel comfort) on fast trains cause changes in passenger fare and create new demand. Important factors are the frequency, timing, price and environmental aspects. The competitive advantage of a fast train is also the convenience of being able to travel from one city centre to another centre by one vehicle more comfortably than by car or airplane.

Banister & Berechman (2000) point out that in developed countries where the quality of the transport infrastructure is basically already at a good level further investment in infrastructure will not on its own result in economic growth. Instead, transport infrastructure investments act as a complement to other underlying conditions which must also be met if further economic development is to take place. According to the authors there are three sets of necessary conditions for significant economic impacts:

1. **Economic conditions:** There must be possibility for positive economic externalities, such as agglomeration and labour market economies, the availability of a good quality labour force and underlying dynamics in the local economy.
2. **Investment conditions** that relate to the availability of funds for the investment, the scale of the investment and its location, the network effects and the actual timing of the investment.
3. **Political and institutional conditions** that are related to the broader policy environment within which transport decisions must be taken. To achieve economic development, complementary decisions and a facilitating environment must be in place; otherwise the impacts may be counterproductive. Included in this group of factors are the sources and methods of finance, the level of investment at different regional levels, the supporting legal, organizational and institutional policies and processes and various necessary complementary policy actions.

A fast train connection creates a new kind of social and economic space, by changing the relative accessibility of locations, which can also generate economic growth effects. Shorter travel times bring cities closer to each other and improve their accessibility, which in turn is a driver for social and economic impacts. (Givoni 2006). An investment in a new rail connection can have an impact on the location of economic activity, urban planning and land use. However, their benefits are often difficult to distinguish from other factors. (Preston & Wall 2008). Wider economic impacts may be significant, but vary from case to case, so a thorough analysis is needed in each case separately (Nash 2009).

According to Banister, the non-traffic effects of transport investments at the macroeconomic level can be identified by regional network effects and the effects on the economy that can be measured by changes in production and productivity (Banister 2007). Most of the effects are redistributed and the impact on employment is generally low. At regional level, the non-transport effects of transport investments relate to the agglomeration benefits to firms and impacts on the labour market (Banister 2007). Investing in a transport infrastructure, such as a new fast track, is an instrument that integrates separated markets,

reducing monopolies, lowering prices and increasing competition boosting the productivity of firms. Economic integration also leads to a more even distribution of real incomes because of better conditions for regional and international trade. Good conditions for business travel and face-to-face meetings can be considered as a key condition for economic integration in a modern economy whose importance in the information society has even increased. As labour markets merge, the economy is growing in both regions. Decreased travel costs with fast trains lead to increased commuting to both directions and hence to higher total production in both regions. At the same time, salary differentials are offset by increased reproduction and the benefits of reprocessing are reduced. Integration leads to increased output and higher real incomes, whereby consumption may also be expected to increase in the corridor. This leads to competition in retail and service across the corridor. (Blum et al. 1997)

The economic impacts of transport investments can also be divided according to different mechanisms generating economic development (Metsäranta et al. 2014):

- **Direct mechanism:** The most significant impact is the reduction of transport costs. Businesses of the region are offered improved accessibility to markets and resources (labour, materials and equipment) and, the benefits of reduced costs of transport and thus enhanced productivity. Direct impacts of construction on wealth and job creation.
- **Indirect mechanism:** “Secondary” entities such as local businesses supplying inputs to directly affected businesses.
- **Induced mechanism:** Increased income leads to increased spending and thus to increased demand.
- **Dynamic mechanism:** Long-term changes in economic development; business location patterns, work force, labour costs, prices, land-use changes, that in turn affect the wealth in the region.

Many of the development impacts of an infrastructure investment are in fact capitalised direct impacts. Therefore, it is a widely applied rule that the wider economic impacts of an investment project are not to be added to the direct (transport economic) benefits. The estimates of the wider economic impacts will, however, be of great interest in the decision-making process.

There may also be external economic impacts to transport cost reductions. Kernohan and Rognlien (2011) implicates that an infrastructure investment can produce benefits through the following mechanisms of effects that are additional to the standard approach of evaluation.

**Agglomeration impacts:** Improved accessibility and the decrease of transport costs may lead to firms to relocate closer to their intermediate suppliers to enjoy lower upstream (buying) and downstream (supplying) costs. The outcome of this process is intensified regional industrial clustering i.e. agglomeration. This may also facilitate specialisation of economic activities enabling increased efficiency from economies of scale. Further, the improved accessibility increases interaction between economic actors and better transfer of knowledge (=> productivity). The increased agglomeration – as well as the induced impacts – has effects on the prices in the region involved.

**Imperfect market impacts:** CBA measures the value of time saving as a saving in gross labour cost assuming perfect competition. There are, however, price-cost margins caused by e.g. taxation and imperfect competition. The improved accessibility creates an incentive for increasing trade between spatial markets. If there are persistent externalities in other markets that are affected by a transport scheme, a reduction or increase in output can diminish or augment the cost of these externalities.

**Labour supply and job relocation impacts:** The improved accessibility affects labour markets in two ways. The higher commuting speed increases the labour accessibility from current locations and attracts more jobs to locate in the region (to benefit from the agglomeration).

According to Graham (2007), there is a strong theoretical case for extending conventional transport appraisal to cover wider economic impacts. Agglomeration economies form the largest component of these wider impacts, and there are differences between different kinds of transport projects in different regions.

### **The Channel Tunnel**

The Channel Tunnel is a 50.5 km long railway tunnel below the canal connecting Folkestone in Kent and Coquelles in Pas-de-Calais. Opening the Channel Tunnel in 1994 enabled a high-speed train connection from London to Paris and Brussels. The railway through the tunnel carries Eurostar passenger trains, Eurotunnel car shuttle trains, and freight shuttle trains. The shortest travel time from London to Paris is 2h 15 min and Brussels 1h 51min. 21.4 million passengers used the Tunnel in 2014. About a half of them travelled by Eurostar and another half by car shuttles. The value of imports to UK was about 47.8 billion £ corresponding 22 % of all imports from EU to UK. The export value from UK was 43.6 billion £ which was 30 % of all export from UK to EU.

Several studies have been published on the regional economic impacts of the Channel Tunnel. According to Thomas & O' Donoghue (2013) "the Channel Tunnel has become a key element in the transport infrastructure linking Britain and continental Europe since its opening in 1994. But, as well as forming part of the Trans-European Rail Network, the Channel Tunnel was also seen as a potential stimulus to trans-frontier collaboration and as a possible catalyst for regional economic development. Although millions of passengers travel through the Tunnel every year, numbers have failed to reach the originally forecasted levels and the overall benefits are fewer than had been anticipated. The English Channel still represents a psychological barrier (partly due to language differences) and the frontier zone has failed to develop as an integrated labour market. Moreover, the study shows that the Channel Tunnel has only had a limited impact on the spatial economy of the trans-frontier zone in Kent and Nord-Pas-de-Calais. While Ashford has undoubtedly gained from its high-speed rail connection, the metropolitan areas of London, Paris and Lille are the major beneficiaries."

### **Öresund Connection**

The fixed Öresund connection between cities of Malmö and Copenhagen is 15.9 km long, including a bridge (7.8 km) and a tunnel (4.1 km) over and under the Öresund strait. The connection was opened in July 2000. The connection consists of a highway and a railway. Approximately 7.5 million vehicles crossed the bridge in 2016. The number of train passengers was approximately 11.5 million in 2016 while the top (12.2 million) was reached in 2015. It has been estimated that the maximum total number of passenger was reached in 2008 when about 25 million travellers crossed the bridge, one third by train and two thirds by car (Tendens Öresund 2012).

The impact of the Öresund connection to the regional economic and social development have been followed and studied actively since the beginning of the project.

An important factor raising the cross-border commuting has been high differences in property prices that has made Malmö an attractive choice of residence for Danes. Another engine has been the labour market, as the demand for labour and salary levels in Copenhagen has fuelled cross-border commuting. An increasing price difference in housing property in the Copenhagen and Malmö areas made Danes contemplate a move to Malmö, and the bridge made it possible to live on the Swedish side and commute back to jobs in Copenhagen. The high unemployment figures in Malmö made growing numbers of Swedes to start to commute Copenhagen, where there were job opportunities available. (Löfgren 2008; Schmidt 2005)

Before the bridge, considering the size of the whole functional region (3 million people), the actual contacts across the Öresund were limited, despite the rapid 45 minutes hydrofoil ferry connection. There were a lot of day-trippers and tourists mostly from Malmö to Copenhagen, a few commuters and sparse business contacts but no shared market or industrial integration. Various policy instruments have been used to support the integration and regional development in the Öresund region and authorities at all levels, local, regional, national and EU have contributed. Both regions suffered of high unemployment and an ageing industrial structure in the 1990s. The bridge project was a promise of a brighter economic future and visions for future were created in several projects. They have led to programmes emphasizing the importance of networking in specialized fields of production, administration and science. (Löfgren 2008; Schmidt 2005)

In 1999, the year before the opening of the connection, about 2 800 people commuted between Skåne and Copenhagen regions. The number of commuters reached 19 800 in the top year 2008. Of all commuters 96 % travelled from Sweden to Denmark and only 4 % to the opposite direction. The share of cross border commuters in Skåne region was 6,7 % of the employed population in 2008. The number of commuters has declined since year 2008, following the economic downturn after the international financial crisis (Öresundsstatistik 2017). An additional negative impact was caused by the introduction of border control in the Öresund bridge in 2016.

The employment declined in the Malmö region significantly more than in the other metropolitan regions in Sweden (Stockholm and Gothenburg) during the 1990s. Since the opening of the Öresund connection in year 2000 employment has grown in Malmö region approximately with the same pace as in other metropolitan regions and remarkably faster than in the rest of the country. (Statistics Sweden)

The bridge has demanded increasing cooperation between municipalities and authorities. The original investment has been followed by other public investments, like the metro in Copenhagen which was opened between 2002 and 2007. Significant private investments have also been made, among others Kastrup's new terminal. The bridge has made it possible to increase cooperation also in higher education and research. (Matthiessen 2004; Sika 2007)

In a thorough research by Andersson and colleagues (2013) the authors stress the importance of the Öresund connection to the long run economic growth potential of the whole Öresund region. They consider the physical and immaterial infrastructure as the most important precondition for the long-run development of the productivity in the region. The Öresund connection has had a crucial role in the structural change taken place especially in Malmö region where the accessibility to a large service and labour market has improved significantly. It has also improved Skånes's international market potential due to fast car and train connections to and from the Kastrup airport. The authors see the improved connections as a crucial factor behind the fast increase of the business and jobs of the Scandinavian, European and global companies in Malmö regions, especially in the knowledge intensive service sector. Another important precondition is the immaterial infrastructure consisting of universities and other scientific research and educational institutions in the Öresund region which the authors consider as one of the leading centres in Europe in scientific research. The top scientific institutes of the region are the universities of Copenhagen and Lund. The Öresund connection is also an important tool for the cooperation of the universities and other research and education institutes. The authors point out the importance of investing to high speed rail and highway connections in the zone from Oslo via Göteborg and Öresund region to Hamburg and to the connection to the high-speed rail network of Central Europe.

## 2. Methodological background

Wider economic impacts (WEI) of transport projects refer to impacts beyond direct user and producer benefits. Interpreted in the light of economics, wider economic impacts are possible because the benefit arising from a change in the transport system to a single transport user is not necessarily the same as the benefit to society. Wider impacts can affect the productivity of businesses directly or materialise through the labour market, the product market or the land and property market. (Venables 2016; Laakso & Kostianen & Metsäranta 2016; DfT 2014)

Changes in the location of businesses resulting from changes in accessibility can lead to the creation of larger and more compact business clusters. This enables agglomeration benefits, which are created as communication and interaction between businesses and their employees increases thanks to proximity. Studies show that agglomeration benefits have a positive impact on the productivity of businesses, although the impacts vary widely between sectors. Agglomeration benefits can be interpreted as externalities of transport investments, which create wider impacts but are not included in transport user benefits.

Transport investments can also create wider economic impacts in the labour market. As travel time and therefore travel costs decrease, the labour force achievable to businesses increases and, on the other hand, the area of potential jobs accessible to the labour force grows wider. The change in achievable leads to an expansion of the labour market. This leads to an increase in labour supply and output, as the travel time saved can be used more on production. The expansion of the labour market and shorter commutes also lead to a better alignment between labour demand and supply as well as workers' competence and employers' needs in that respect, which increases productivity.

In imperfectly-competitive conditions, transport projects also affect the functioning of the product market. Many product market imperfections can be linked to lack of infrastructure. Accessibility and transport costs affect the size of markets. Transport projects affect the product market through two mechanisms: Firstly, a project can have an impact on the production costs of businesses and therefore on prices and production volumes. Secondly, there can be a change in competition between businesses and their strategic positioning in terms of location, pricing and production.

Transport investments affect the value of land and therefore also the housing and commercial property market. As accessibility improves, house prices can be expected to rise especially in those locations whose proximity to job and service hubs increases from a transport perspective because of the investment. Improvements in accessibility add value to land in all locations but especially in areas that become within a reasonable travel time distance as a result. Changes in prices affect the volume of property development and the supply of housing and business premises. However, these changes are linked with the user benefits to households and firms and therefore the effects in property market cannot directly be considered as additional benefits.

### Calculation methods

The calculations in this study were carried out according to guidance issued by the UK Department for Transport (DfT 2014) for the appraisal of wider economic impacts. According to the UK's guidance, the potential wider economic impacts of transport projects include the following:

1. Agglomeration economies
2. Economic welfare benefits derived by households and businesses from changes in the labour market, consisting of
  - a. improved labour supply and
  - b. labour force shifts to more (or less) productive jobs.
3. Increased output in imperfectly-competitive markets.

### Agglomeration economies

According to the guidance (DfT 2014, Appendix D), agglomeration benefits are determined based on effective density. Effective density is a function of distance between sub-areas, employment in a sub-area and travel costs incurred from commuting and work-related travel. The equation (2.3) in Appendix D (DfT 2014) of the effective density has been applied in this study with following specifications:

- Sub-areas are functional regions: in Finland sub-regional units (seutukunta); in Estonia regions (maakond); in Latvia (Riga) region.
- Average generalised costs are based on estimated business/commuting travel time in minutes between the centres of functional regions in alternatives V0+ (ferry) and V1 (FinEst Link)
- Sectoral division has not been applied.
- Value 2,5 has been applied for the distance decay parameter  $\alpha$ .

The change in productivity resulting from a change in effective density has been calculated using equation (2.1a) in Appendix D (DfT 2014), according to which the productivity change is a function of effective density change caused by the project, GDP per worker, employment, and elasticity of productivity with respect to effective density. Values 0,05 (base) and 0,025 (low) have been applied to the elasticity of productivity. Sectoral division has not been applied.

### Benefits from improved labour supply

The change in labour supply estimation is based on the change in the generalised cost of commuting. Appraising the impact is based on the relation between the travel costs and peoples' willingness and opportunities to work. The welfare impact of labour supply change is presented in equation (4.1) in Appendix D (DfT 2014). The impact depends on several factors: number of commuters between all pairs of zones in project alternatives; total generalized cost saving due to the project relative to average net earnings; elasticity of labour supply with respect to net earnings; expected wage of marginal worker entering the labour market in each zone. The simplified equation (4.1a) in Appendix D has been used in calculations of this study with following specifications:

- Sub-areas as above.
- Average generalised costs are based on the same travel time and unit cost assumptions as in the C/B-calculations of this study.
- Value 0,2 has been used for the elasticity of labour supply parameter  $\epsilon$ , based on results of Ministry of Finance (2017).
- Value 0,6 has been applied for average tax rate parameter to convert gross earnings to net earnings, including income tax, pension fees, corporation tax and other direct personnel costs connected with the salaries.
- Value 0,69 has been applied for the parameter  $\eta$  that captures the lower productivity compared to average of workers on the margin of the labour force, based on suggestion of DfT (2014).

The decision of potential entrants to labour force is assumed to be based on the after tax net income and commuting costs. However, the wider impact of increased labour supply stems from both higher household

incomes and increased business output. The household income part is not included in the WEI estimation, to avoid double counting. Instead, only the tax impact representing the effect on higher business output is included.

#### Determining benefits resulting from work relocation

According to the UK guidance, the impacts of labour force shifts are appraised by first modelling the effect of the transport investment on the location of work and then using the estimated results of location changes to appraise the resulting change in productivity. Changes in productivity resulting from the relocation of work are appraised by multiplying the change in employment resulting from the transport investment by the average productivity of the sub-area (GDP/worker) and by adding the figures for the areas together. The result is the change in total output resulting from the shift to jobs with different productivity for each year.

The impact of the move to more/less productive jobs due to the project compared with no-project alternative is estimated using the equation (4.4) and the calculation of the wider impact part of the total impact is based on equation (4.5a) in Appendix D (DfT 2014).

The theoretical framework in the work relocation is that the positive productivity effect of the fixed link will increase the competitiveness of the Helsinki region and Tallinn region relative to other regions in Finland and Estonia but also with respect to other major urban regions of Northern Europe. This attracts existing firms to grow and new firms to locate in Helsinki and Tallinn regions instead of alternative locations in Finland or Estonia or other regions in Northern Europe.

It is assumed that the Helsinki region will gain in total 1 500 (high) or 750 (low) and Tallinn region in total 800 (high) or 400 (low) new jobs thanks to the fixed link cumulatively during the first 15 years of the operation. Respectively, the regions outside Southern Finland and outside Tallinn region in Estonia are assumed to lose 60 (high) or 30 (low) jobs each, in 15 years.

In Southern Finland outside Helsinki region, Pärnu region and Riga regions the net effect is assumed to be zero. Most of the new jobs in Helsinki and Tallinn regions are based on firms' decisions to grow in these regions instead of other regions in Northern Europe. The influence of the fixed link on job shift and creation is assumed to dry out after 15 years.

The economic net impact of labour force shifts is determined by multiplying the change in output as calculated above by the average tax coefficient, which includes the effect of the change in the productivity of work on value added (taxes paid by firms) and wages (income tax). As in the labour supply case the wider economic impact is the resulting change in tax revenue respecting the effect of higher output for firms. Coefficient 0,5 has been used for the tax revenue share.

According to DfT Guidance the location modelling should be based on a Land Use Transport Interaction - model. In this model the location analysis of the new and shifted jobs is based in Helsinki region on the land use model developed for the MAL 2019 project<sup>1</sup>. In the model the change of jobs in the region is projected to year 2050 at detailed geographical level based on two factors: (1) land use restrictions set by municipalities in master level and detailed land use plans, and (2) the accessibility of each location. According to the model there will be a shift of service jobs towards the best accessible locations (inner city, major rail node zones and the Aviapolis zone near the Helsinki Airport) at the cost of less accessible locations. In Tallinn it is expected, based on land use plans and expert views, that most of new and shifted jobs will locate in the Ülemiste area and in the inner city (Kesklinn).

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<sup>1</sup> See: [https://www.hsl.fi/sites/default/files/uploads/2017-06-20\\_mal\\_yleiskalvosarja\\_englanti\\_pdf\\_o.pdf](https://www.hsl.fi/sites/default/files/uploads/2017-06-20_mal_yleiskalvosarja_englanti_pdf_o.pdf)

## Determining benefits resulting from increased competition

According to the UK guidance, the effect of imperfect competition should be factored in simply by assuming that it amounts to 10% of the user benefits of business-related travel on average. In this study, this gain is determined by means of the estimated change in the generalised cost of work-related travel resulting from the projects. These figures are based on the standard C/B-calculations.

### 3. Discussion on the application of UK's model

There is a lot of discussion among the researchers of transport economics on the framework and applications of WEI. The discussion concerns the coherence of the theory, use of parameters and the problems of application in different types of transport investments as well as different countries. At present the guidance issued by the UK Department for Transport (DfT 2014), which was applied in this study, is the first set of comprehensive guidelines that are well documented and publicly available.

Finnish Transport Agency conducted a research project on the application of WEI in Finland. The first study, containing a literature review and a summary of the applications in selected countries, was published as a report (Laakso & Kostianen & Metsäranta 2016). The second study (still in progress) consisted of two parts: (1) an empirical analysis of the relation between accessibility and productivity and accessibility and employment, and (2) and experimental application of the UK guidance to several transport investments implemented in Finland during the last years. Three internationally respected professors<sup>2</sup> specialized on transport economics were asked to carry out a peer review on the last study. The peer review does not directly deal with the WEI in the context of FinEst Link but some of the comments and discussion are relevant also from the point of view of this project.

The specialists agree that transport investments may create wider economic impacts beyond the user and producer benefits and costs which are covered in the standard C/B-analysis. They agree also that the sources of the potential wider impacts can be classified to three types (below summarized by Dan Graham):

- **Agglomeration economies** - transport improvements can increase the scale of potential economic interactions available in the economy, with implications for the relative level of agglomeration experienced by firms.
- **Imperfect competition** - transport improvements can cause a decrease in the costs of interacting in the spatial economy, thus potentially allowing firms to expand output. Output expansion yields a welfare gain in uncompetitive markets when willingness to pay for the increased output exceeds the cost of producing it.
- **Tax revenues arising from labour market impacts** - if accessibility improvements cause firms or workers to move to more productive locations, or have greater participation in labour markets, this will result in a tangible financial gain (i.e. higher wages or productivity). Most of this is captured in the consumer surplus based calculations of user benefits, but not the resulting change in tax revenue to the government (i.e. income tax, national insurance, and corporation tax).

The specialists have different views on the applicability of the UK guidance in other countries as well as the assumptions and parameters used in the estimations of the magnitude of impacts. Sweden and Denmark have national guides for evaluating the wider effects. They differ in many respects of those in UK and consequently, Swedish and Danish specialists presented some critical comments on the UK's practice.

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<sup>2</sup> Maria Börjesson, VTI Swedish National Road and Transport Research Institute, Sweden; Mogens Fosgerau, University of Copenhagen, Denmark; Dan Graham, Imperial College London, UK.

Börjesson:

- Common to all the wider effects is that causal effects are highly uncertain and context specific, in terms of size. There is a risk of overlapping with the benefit already included in the standard CBA.
- Agglomeration effects cannot be assumed to add significant benefits outside dense urban areas, especially in sparsely populated areas.
- The results depend strongly on the input data, and the accuracy of the input data is critical.
- In the Swedish practice it is assumed that redistribution effects do not affect the socio-economic because if one region gains population or firms, some other regions will lose. Still, redistribution is important from a regional perspective and for this reason the effects should be described in the distribution analysis.
- Increased production in markets with imperfect competition: The impact may exist, but it is small and uncertain.

Fosgerau:

- The British guidelines are far from the final word on the issue. They are merely the first set of comprehensive guidelines that are available. They reflect compromises and particulars that reflect the process in the UK, and which have little relevance in other countries.
- An important objection against the UK guidelines is that they add a range of wider economic benefits, without providing a general theoretical framework that includes all the effects. There is much reason to think that there is double-counting of benefits, which means that the wider economic benefits will be exaggerated.
- The UK parameters may in some cases be transferred as a first approximation if local estimates are not available. It is however strongly recommended to develop local estimates of parameters.

Graham also points out the risks of double counting of estimated WEIs and user benefits of the standard cost-benefit calculation. He stresses the importance of adequate empirical research concerning the parameters. However, he does not present reservations concerning the application of the methodology of UK, except the sources of some parameters.

All specialists criticize the data and methods concerning the first steps of analysing empirically the relation of accessibility with productivity and regional labour markets and estimating the parameters from the Finnish data. The data is based on regional level (NUTS 4) cross section aggregate data from regional accounts statistics and labour statistics. According to their view reliable estimates of the elasticity of productivity with respect to accessibility requires micro level (firms or workers) panel data from several years and accessibility data at geographically detailed level from several years. The specialists point out that estimations based on aggregate data may lead to upward biased estimates.

The criticism of the specialists concerning the initial elasticities of agglomeration are justified. However, the aim of the first step estimations based on aggregate data was to demonstrate the relation between accessibility and productivity in different sectors using Finnish data, not to get universally applicable final estimates. The first step estimates were not used as such in the case calculations of WEIs concerning the Finnish transport projects. The creation of a micro level panel data and respective detailed accessibility data from several years was not realistic as a first step empirical exercise. Instead, it was suggested in the study as a conclusion that further stages of the empirical analysis in Finland should be based on micro level panel data.

Concerning the application of the guidance of UK (DfT 2014) to estimate the WEI of FinEst Link it must be noted that FinEst Link is certainly a project where wider impacts are relevant because the railway between

Helsinki and Tallinn would link two growing metropolitan areas which already are deeply integrated, and the change with respect to the accessibility compared with the existing connection is remarkable.

In the WEI calculations of the FinEst Link the critical parameters are based on a range of alternatives (low – base) to show the sensitivity of the results with respect to the parameter values. For example, for the elasticity of productivity with respect to accessibility we use parameter values 0,025 (low) and 0,05 (base) representing the range which is in line with the recent research literature (Combes & Gobillon 2015). The risk of double counting of impacts is considered by including to the labour market impacts only the tax revenue from increased labour supply and work shifts.

#### 4. Expert views on the impact of FinEst Link on integration and socio-economic developments

During the study selected experts<sup>3</sup> in Estonia / Tallinn region and Finland / Helsinki region were interviewed about their views on the impacts of the possible FinEst Link at regional and national level.

The questions or discussion topics concerned the following themes:

- Prospects of economic and demographic development in Tallinn region and Estonia (Estonian experts)
- Economic and social integration between Tallinn and Helsinki regions and the impact of transport connections on integration
- Strategic cooperation between Tallinn and Helsinki regions and the challenges of the cooperation in case the Helsinki-Tallinn tunnel will be realised
- Impacts on land use and on other means of transport in Helsinki and Tallinn: airports and air transport; ports and sea transport
- Risks and other opportunities; distribution of benefits and losses.

Some of the interviewees concentrated on selected topics depending on their interests and specialization. The results are summarized in this section.

##### **Prospects of economic and demographic development in Tallinn region and Estonia**

The interviewees were asked about their views of the main strengths and challenges of economic potential in Estonia and in Tallinn region. They were also asked whether they consider the following growth visions realistic / overvalued / undervalued: GDP growth from 2017 to 2050 (average annual real growth): Estonia 4 %, Tallinn region 4,5 %; Finland 2 %; Helsinki region 2,5 %?

The economic development in Estonia depends on wider economic and geopolitical developments in Europe and globally as well as strategies adopted in Estonia, like immigration policy and investments in infrastructure. All Estonian experts consider the growth rate of 4 % p.a. overvalued for Estonia and suggest 2-3 % p.a. The economy of Tallinn region is expected to grow faster (0,5-1 %-points p.a.) than the economy of Estonia. However, Estonia is anticipated to grow faster than Finland and the income difference between the countries is expected to lower gradually in the long run.

The population in Estonia is expected to remain at the present level or decrease. However, the growth of the population in Tallinn is considered realistic at 0,5 – 1 % growth rate. Most experts considered 1 % p.a.

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<sup>3</sup> A list of interviewed experts is in the end of the section.

growth rate realistic for Tallinn. The future development of immigration from other countries is crucial for the population development of Tallinn. The migration from other parts of Estonia is expected to slow down.

### **Economic and social integration between Tallinn and Helsinki regions and the impact of transport connections on integration**

The economic integration between Helsinki and Tallinn regions has proceeded fast for a long time in terms of transport, business, labour markets, tourism and leisure. The growth has continued in 2010s, despite the slow economic developments. Record levels have been reached in passenger and cargo transport. The regular 2 h ferry connections between Helsinki and Tallinn have been crucial for the realisation of the economic integrations.

Differences in price levels, salary levels and property prices have been a significant driver for the economic integration so far. Price differences attract Finnish visitors for shopping and to use of services in Estonia, but the culture and leisure service supply are also important attractors. Labour cost is one factor influencing the Finnish manufacturing and service firms to invest in Estonia but there are other factors too, like logistics and favourable legislation, taxation and administrative burden. The low mental barriers, like the cultural and linguistical proximity between the people in both countries, were also mentioned as a factor promoting integration.

However, some experts mentioned that the development of social integration has left behind the economic integration. Consequently, networks of science and research, cross-border studying, and networks of leisure activities are less developed than cross-border activity in business, labour markets and tourism.

It was also pointed out that in the international competition between metropolises the position of Helsinki-Tallinn region is weaker than Copenhagen-Malmö region in the present situation, due to the Öresund connection and the strong regional role of Kastrup airport. The Fehmarnbelt tunnel connecting the Öresund region to Hamburg and Central Europe will further strengthen the international position of Copenhagen-Malmö.

It was also mentioned that the differences in the autonomy of municipalities and regions with respect to the state and differences in the management systems and political practice between Helsinki and Tallinn influence the cooperation between the cities. For example, cities of Helsinki, Espoo and Vantaa have more freedom and resources to decide about the infrastructure investments than the city of Tallinn.

The experts agreed that the integration will continue even without Helsinki-Tallinn tunnel. The saturation with respect to transport growth, deepening of economic integration and especially social integration have not been reached yet. They pointed out that the salary and price differences will continue to shrink and their role as a driver of integration will become less significant, but the differences do not totally vanish for a long time.

The impact of FinEst Link on integration depends on how the FinEst Link would function in terms of train frequency, waiting times and actual travelling time. High speed, dense frequency, easiness of use and reasonable pricing increase the attractiveness of commuting as well as casual trips for meetings of friends, shopping and cultural services.

All experts agree that the major impact would be on commuting as this would be made much more easier and time-efficient. It was expected that the major commuting flow goes from Tallinn region to Helsinki. The Öresund connection was mentioned as a reference; commuting increased 7-fold in eight years after the opening of the bridge and the dominating direction was from Malmö to Copenhagen. In the case of Helsinki-Tallinn the starting point would be much more integrated labour market at present and in the

future compared with the situation in Copenhagen-Malmö in the end of 1990s. The integration of Western and Eastern Berlin since the early 1990s was also mentioned as a reference.

Distance work was considered as a megatrend which might decrease the demand for commuting travel but at the same time, face-to-face communication remains important.

The link is expected to increase also business travel to both directions. Finns would probably dominate the business travel. Improved accessibility for business was also considered an important factor to keep the Finnish companies' subsidiaries in Estonia and promote their growth there, instead of moving to other countries to gain lower production costs.

Rapid train connection between the airports would also enhance the area of potential customers of air transport and strengthen the connecting role of the link to international metropolises, especially via Helsinki airport. Another important international link to other Baltic countries and to Central Europe is Rail Baltica with a common terminal in Ülemiste. Some experts point out that via Rail Baltica and FinEst Link Riga comes much closer to Helsinki, in addition to Tallinn, and this would promote the integration of Riga to the Helsinki-Tallinn metropolis.

The views of the role of FinEst Link from the point of tourism vary. Some experts see that tourism will get an additional boost, especially from Asian tourists but also from growing tourism inflow from Finland. Another view is that ferries with probably lower prices remain the major means of transport for tourists while the link may boost the total number.

There are various opinions about the cargo transport. Most of the Estonian experts see that there would be a major shift in cargo transport from sea to train and it would boost the Finnish export. The Finnish expert are more sceptical in their views about the change in the cargo flows.

### **Strategic cooperation between Tallinn and Helsinki regions and the challenges of the cooperation in case the Helsinki-Tallinn tunnel will be realised**

It was stressed by experts that the key for the strategic cooperation is the common will and mutual understanding of the potentials and benefits for both countries and both capital regions. If there is a strong will and understanding the operations, measures and organisations will be found. The cross-border strategic cooperation in the Öresund region is a good reference.

It was also reminded that despite common interests and benefits there will also be competition between the cities and conflicting interests between some organisations. For this reason, all initiatives do not necessarily lead to realisation and there may be obstacles in the way towards a competitive twin-city. That is the case also in the Öresund region.

The experts listed several areas where there is need and potential for concrete cooperation and measures. Most of the topics raised are actual now or soon and are not tied with the realisation of the FinEst Link:

- Development of the business and taxation legislation closer to each other, especially the Finnish legislation towards the direction of Estonia.
- Common goals and principles in developing land use and transport, especially in the FinEst Link terminal and station zones and further links between them and other centers.
- Common strategies or institutions to promote tourism.
- Joint marketing campaigns world-wide.
- Common public services, like transport tickets and parking. The point is creating the image that the twin-city region is the same.
- Coordinating the education systems to support mobility of pupils.

- Co-operation between regional universities should be encouraged on both sides.
- Policy instruments to promote social networks between the regions.

It was pointed out that strategies and measures are needed at national, regional and municipal level. Legislation changes and major investments must be prepared and decided at national level while development of common services can be organised at regional or city level.

It was suggested that Regional Development Strategy should be prepared at national level, followed by TwinCity strategy and action plan on city level.

### **Impacts on land use and on other means of transport in Helsinki and Tallinn: airports and air transport; ports and sea transport**

**In Tallinn** the Ülemiste area will continue to grow. There will be 30,000 additional work places in the near future, and the growth will continue. The area will also grow as a residential area.

Tallinn city centre remains attractive due to its historic nature. There is room for growth in the city centre and the surrounding zones. The centre of Tallinn is moving towards Ülemiste.

The transport links between Ülemiste and other areas are reasonably good. One of the links that is expected to develop is the extension of the current tram connection within Ülemiste City. Connecting the passenger port area with tram is another challenge.

Cargo and passenger transport by ships would most probably hit hard by the FinEst Link and thus passenger port area would lose its attractiveness. Moving cargo out from the centre would be beneficial for Tallinn. Still, ports will have their role as attractive for tourists and centre-to-centre route. The role of Kopli Cargo Station will diminish.

Impact on FinEstLink to the passenger port area will be significant and cargo is also moving out.

**In Helsinki** FinEst Link would increase the accessibility and attractiveness around the station zones in the city centre, in Pasila and in Helsinki Airport and the surrounding Aviapolis zone.

In the city centre the growth potential is rather limited. Additional business construction would be based on complementary construction in the existing urban structure.

In Pasila and in Aviapolis there is a lot of land available to be developed as urban business and residential areas. In Aviapolis the connections within the sub-centres of the large area will be a challenge outside the new Ring Rail (Kehärata) zone. The potential Airport Link (Lentorata) from City Centre via Pasila to the Airport (in tunnel, possible beside FinEst Link) and further toward North to the main railway would link the long-distance trains from northern cities, like Tampere, to the Airport and to the FinEst Link.

The position of **Helsinki Airport** is currently very strong due to extensive route supply to Asia and other international destinations. There has been and will be a lot of investments increasing its competitiveness as an North-European hub. Helsinki competes mainly with Arlanda (Stockholm) and Kastrup (Copenhagen). The FinEst Link would attract more air travelers from Estonia and possibly also from Riga to fly via Helsinki Airport. Both **Tallinn Airport** and **Riga Airport** are more oriented towards low-cost carriers. However, FinEst Link might create possibilities for specialization and co-operation between the airports of the wider region.

The experts expect the demand for air transport to increase, so there could be growth potential for all airports. Especially tourism from Asia has potential to increase. This should be supported by common marketing.

The passenger transport with ferries between Helsinki and Tallinn is expected to remain significant, despite FinEst Link. Especially the tourism and leisure travel will continue in ferries due to demand growth and competitive pricing while commuting and business travel are expected to be dominated by the train connection. However, the business logic of the ferry companies requires that cargo lorries are transported in the ferries in addition to passengers and cars. The Finnish experts expect that sea transport remains as an important cargo mode in Helsinki beside FinEst Link.

### **Risks and other opportunities; distribution of benefits and losses**

The size of the project and consequences related to the size are considered a source of several risks, like

- Economic risks due to high investment and operation costs and several uncertainties
- Pricing risk, failure to meet price expectations of clients
- Interoperability with existing systems
- Sustainability of the massive project.
- Governance risk: to identify and implement successful governance model (operator, joint venture).

Several other risks were also identified:

- There is a risk that the project will remain as a pure transport project, without support by strategic co-operation, public services, etc. Benefits will not realize then.
- New protectionist approaches reduce integration. For example, passport control in Öresund has reduced the attractiveness considerably.
- The project is rather costly, co-funding from the EC unclear, benefits are unclear and might end up with negative-sum-game, in the light of the current travel options (already cheap and flexible). Even so for Estonia to whom financial investments might be too challenging.
- FinEstLink could increase cross-border crime.
- The (public) funding might be challenging, both the investment as well as the operating it, and proper financial planning is needed. The benefits and impacts need to be clear.
- Transport connections could develop fast, leading to further integration, while cross-border services might not follow.
- Feasibility studies should account for all possible positive impacts. Overall the message expected is that “all parties are winning”.
- “Russian risk” – they might possibly oppose such tight integration between Estonia and Finland.

There were also fears of uneven distribution of benefits and losses:

- FinEstLink could increase convergence of prices and, as a result the land and housing values in residential areas become very expensive for “average Estonians”. Some parts in Tallinn already as “owned-by-foreigners”.
- Unequal distribution of benefits and tensions from that.
- Uneven distribution of benefits between Finland and Estonia, and possible tensions due to that.
- Increased mobility might cause problems to Estonia, should outflow of highly skilled (like doctors) would be boosted.

- Estonian regional development might become even more unbalanced.

#### Opportunities

- FinEstLink will catalyze developments in Riga region and these should be considered seriously.
- FinEstLink might be a catalyst to new processes and other positive opportunities.
- Could boost the trade and other connections with Russia.
- In general, both sides can win as TwinCity would bring more business, tourists, etc for both. Consequently, the wide metropolis can better compete with other regions, such as Stockholm or St Petersburg.
- TwinCity as such will increase the attractiveness of the whole region.
- Should cross-border e-government services be developed, and competencies obtained, these could be sold to other countries.
- Cooperation in research and development, especially between universities and other educational and research institutes.

## The experts interviewed

### Interviews

Kaarel Kose (Advisor) and Tiina Beldinsky (Senior specialist), Harju County Government

Indrek Gailan (Deputy Director), Eva Killar (Executive Officer) and Mario Lambing (Head Analyst), Ministry of Economic Affairs and Communications

Ralf Martin Soe (Advisor and Researcher), Ministry of Economic Affairs and Communications and Tallinn University of Technology

Liivar Luts (Project Manager, FinEstLink project), City of Tallinn

Tatu Rauhaniemi (Director), Helsinki Region Chamber of Commerce

Jose Valanta (Director of Economic Development), City of Vantaa

Heikki A. Loikkanen (Professor Emeritus of Urban Economics), University of Helsinki

### Group discussions on special themes

Kimmo Mäki (Director), Port of Helsinki

Maija-Leena Rinkineva (Director of Economic Development), Ilkka Haahtela (Director of Immigration Issues) and Rikhard Manninen (Head of Master Planning), City of Helsinki

### Interviewers

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