

## 1. Purpose

The aim of this project, *The Labour Market Effects of the Öresund Bridge*, is to investigate the impact of the Öresund Bridge on labour market (and firm) outcomes in *both* Sweden and Denmark. There are two main contributions of this project: first, I plan to use a new *pioneering*<sup>1</sup> dataset that combines Danish and Swedish employee-employer data. Second, using this dataset an array of new (policy) questions can be addressed regarding the impact of increased labour market integration across borders.

## 2. Background, Data and Motivation

The Öresund bridge has integrated to a greater extent the previously mostly disjoint local labour markets in Malmö and Copenhagen as the cities are now well within commuting distance from each other. In this project we have the unique opportunity to look simultaneously at the impact of a large policy shock, i.e. the opening of the Öresund Bridge in mid-year 2000, on the local labour market outcomes on *both* sides of the strait.

In this application I am seeking financing to construct the database needed for this project. The database includes employee-employer matched data within Denmark and Sweden from 1997 until 2014. An important additional database is the *Transregional Register* which includes information on commuters between Denmark and Sweden for the same period. By first combining the Swedish and Danish employee-employer datasets and then using the *Transregional Register* we are able to link all individuals to their employers in Denmark and Sweden (even across borders), and effectively have the same information about cross-border and within-country commuters. The importance of the *Transregional Register* is highlighted by the fact that individuals residing in Sweden and working in Denmark will, according to Swedish registry data, have zero income in Sweden (and reverse). The result is what has been called “mörkertal”<sup>2</sup> as individuals are displayed as without income in their country of residence. The OECD has called the availability of the cross-border data (the *Transregional register*) in Denmark and Sweden the “envy” of other countries (see Nauwelaers, Maguire, & Marsan (2013)). Yet until now only aggregate data from the register has been published and the type of cross-border matching as suggested in this project has not been performed.

This combination of a large policy shock and high quality cross-country matched micro-data allows for a large array of new potential research questions that previously could not be addressed due to lack of data. This includes the impact of reducing cross-border costs and increased integration on both labour market and firm outcomes, labour market matching and even urban growth and regional development. This project focuses on labour market outcomes and relates therefore broadly to the seminal contributions on labour market matching and search by the Nobel laureates of Mortensen and Pissarides (1994) while other related in labour market and international trade literature include contributions by McCall (1970), Pissarides (2000), Lentz and Mortensen (2010); on labour market matching (see e.g. Barnichon & Figura (2015)); on globalization and wages by Hummels, Jørgensen, Munch, and Xiang (2014); and on globalization and labour market sorting by Davidson, Heyman, Matusz, Sjöholm and Zhu (2014).

## 3. Research Questions

The main focus of this project surrounds addressing how the labour markets in Sweden and Denmark were impacted by the Öresund Bridge. The introduction of a fixed link between Copenhagen and Malmö provides a quasi-natural experiment that we can use to compare labour market outcomes before and after the introduction. An overview of some of the main questions<sup>3</sup> of the project follow:

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<sup>1</sup> To my knowledge, no other project has combined large scale register datasets across countries and matched individuals to firms even if they do not work in the same country (as is planned in this project).

<sup>2</sup> See discussion in the final report of the Örestat III project, [www.orestat.se/sites/all/files/orestat\\_magazine\\_230x280\\_webb.pdf](http://www.orestat.se/sites/all/files/orestat_magazine_230x280_webb.pdf)

<sup>3</sup> Björn has also preliminary plans to follow up this project by using the dataset on further projects to investigate questions regarding regional and urban development following liberalization of borders (see for example Brühlhart, Carrère and Trionfetti (2012) and Brühlhart, Carrère and Nicoud (2015)).

- a. Does increased labour mobility across the Öresund Bridge improve the matching process in the labour market?
  - Which groups gain or lose?
  - Is there a difference between high and low skilled individuals?
  - Are men and women affected differently?
- b. How are commuters' income affected?
- c. Are cross-border commuters a substitute or complement to existing workers?
- d. In this project it may also be of interest to document and investigate which firms employ cross-border commuters and how firm outcomes are impacted.

To identify the impact of the Öresund Bridge we plan to employ as a baseline, a difference-in-difference methodology. The dataset is well suited for such a methodology as it spans a period both before and after the introduction of the Bridge. First, we can compare how the behaviour of the same individual is impacted over time (before and after the introduction). Secondly, we can compare similar individuals by arguing that individuals in Malmö are to a greater extent impacted compared to those in Gothenburg, Stockholm or other cities in Sweden. Hence, we can use this variation in exposure over space to compare how the Öresund Bridge impacted similar individuals that vary in their proximity to the Bridge. This identification strategy resembles the method used in Arnarson (2015) investigating the impact of the Öresund bridge on firm export decisions.

Additionally, we may complement this strategy with other methods such as matching techniques, or exploit variation due to policy or more macroeconomic changes that have occurred during the period. This includes, for example, changes in the rules for "ægtefællefradrag" for Swedish commuters in 2011 which made it considerably less profitable for married individuals to commute from Sweden to Denmark. Alternatively, one could investigate how (real) exchange rate fluctuations impact the incentive to cross-border commute (see Ekholm, Moxnes, & Ulltveit-Moe (2012) who investigate how firms respond to a real exchange rate shock).

#### 4. Policy Relevance

The construction of the Öresund Bridge is a large policy experiment (quasi-natural experiment) yet little is known about the labour market effects of the bridge. This project bridges this gap by contributing to a better understanding of the impact on respective labour markets in Denmark and Sweden as well as the Öresund region as a whole. The introduction of border controls between Malmö and Copenhagen highlights further the need for this research. The border controls increase commuting costs and labour market segregation, but we are unable to quantify the economic costs of these actions for the region as we lack knowledge of the precise impact of the bridge. Lastly, this development towards segregation stands in stark contrast with current plans to create a "Greater Copenhagen" that spans the Öresund region as a whole (Skåne and eastern Denmark). This project could therefore provide important policy insights and guidelines on developing a harmonious labour market in the Öresund region.

#### 5. About the Project

This project is led by Björn Thor Arnarson, who will start a post-doctoral position at the University of Copenhagen on January 1<sup>st</sup> 2017. The position is financed by a project-grant on export promotion (led from the department by Professor Jakob Munch). As a part of his position Björn will be working with similar Danish register data planned to be used in this project. Björn Thor has also substantial experience working with Swedish register data (see CV). Björn Thor has written before about the Öresund Bridge using Swedish data to evaluate models of multi-product exporters (see Arnarson, 2015). It is expected that this project will take 3 years starting from January 2017. The aim is to publish one or more articles in leading journals. A draft of the first article is expected to be ready after 2 years.

**References**

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## Budget

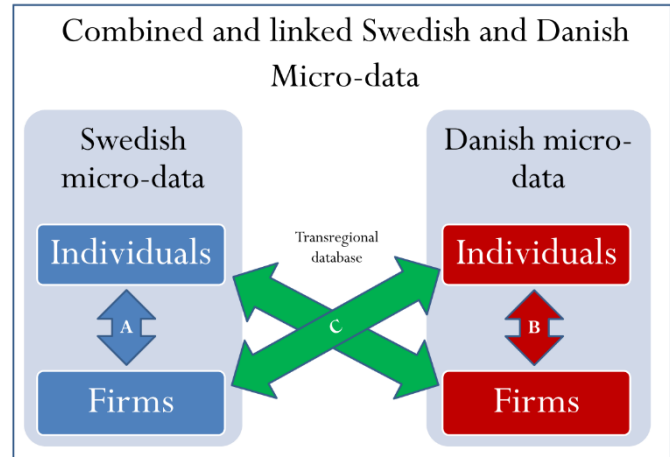
Below is the budget following the guidelines of the EPRN-network.

### 1. Data

The vast majority of the budget will go towards purchasing all the datasets for the project from 1997 until 2014 (2015 if available). The datasets include (see also the accompanying figure):

- Employee-employee matched data for Sweden (A)
- Employee-employee matched data for Denmark (B)
- Transregional database both for Denmark and Sweden (C)
- Firm level production and trade statistics for both countries

The estimated cost of purchasing the data is DKK 250 000. This figure is based on informal discussions with Statistics Denmark and previous costs of similar datasets from Statistics Sweden. The amount includes the cost to purchase and construction of the database (e.g. potential research assistance).



### 2. Travel and Smaller Equipment

The results of this project are expected to be presented at conferences at later stages and some smaller equipment and software will be needed for the project. The combined total cost is estimated to be DKK 25 000.

### 3. Research Time

We do not seek financing for research time in this application. This project will be carried out under a 2-year post-doc position at the University of Copenhagen starting in January 2017. This will be complemented by other forms of financing for later stages (e.g. Marie Skłodowska-Curie fellowship from the EU).

## Budget overview

Total amount before overhead: DKK 275 000

Overhead cost (20 per cent): DKK 55 000

**Total amount applied for: DKK 330 000**