



Analysis of intercity bus markets on long distances in an established and a young market: The example of the U.S. and Germany



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ABSTRACT

Recent deregulation in German long distance bus services lead to highly dynamic developments in this market. Long-distance coach services in the U.S. have been deregulated since the 1980th. The aim of this paper is to compare one established and one young/emerging market with the example of the U.S. and Germany. We first investigate how the framework conditions and market structures have developed in both countries. Based on a unique dataset with more than 2000 US and more than 150 German routes including various variables on long-distance coach services, we analyse in a second step the supply and ticket prices in both markets that results from the different regulative settings. The results show that distance, the number of stops and frequency are highly significant determinants explaining the size of ticket price. Regarding competitive behaviour, we identify operators determining significant lower ticket prices in the markets compared to others. Finally, we consider how the spatial structure in the US influences the supply. We find that spatial distribution of the cities as well as demographic attributes such as the size population and the share of white population are determining the supply of intercity bus services in the US.

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1. Introduction

Long distance bus services are a highly efficient form of public transport. Energy consumption per passenger kilometre is lower than for most other modes of transport (depending on number of passengers carried). Enormous differences in market shares and passenger volumes exist in different countries depending on spatial structures, on alternative transport services and on regulations. In fully deregulated countries such as UK, USA and Sweden intercity bus services on long distance run without any subsidies. In partly deregulated countries like in Norway and Spain, intercity buses run on subsidies as a result of competitive tendering. Statistics show that passenger numbers for rail services have been growing steadily although intercity bus services have been subject to deregulation at least in Sweden and UK. Nevertheless, rail transport

is seen as the main competing mode which is usually highly subsidised and additionally protected by regulations such as bans on long distance bus services where rail services exist in parallel. In Germany this was the case until the end of 2012, before the Federal Passenger Transportation Act (“Personenbeförderungsgesetz”, PBefG) has been amended. In the US rather low cost airlines than rail services compete with intercity bus services on long distance because of different spatial conditions compared to Europe.

Experienced intercity bus industries have shown, the share of many small and medium sized and a few large companies turns the other way around, after a certain period of the market opening. New entrants are squeezed out of the market shortly after entry or were eliminated by large operators due to mergers and acquisitions. At least this has been the result in the UK and the US after ten years of the deregulation.

Long distance bus services are therefore an interesting object for studying how market mechanisms work in transportation: Which services are offered at which prices and locations?

We can analyse these questions for markets in different degrees of maturity as regulation differs in terms of type of restrictions set and in terms of the time when restrictions were set or released. The

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U.S. has finished deregulation in the 1980th. Since then long distance bus service markets could and have developed with some interesting ups and downs. Deregulation in Germany happened only recently in January 2013. Long distance bus services actually did not exist here until discussions about market opening started in 2009 but are now coming up in a very dynamic way (Schiefelbusch, 2013). Do they already show patterns that are similar to the mature market in the U.S.?

The aim of this paper is to compare one established and one emerging intercity bus market on long distances with the following main research questions:

How has the framework conditions changed over time? How have the markets developed under these conditions?

Which type of destinations is served at what prices, frequencies, travel times and how does market structure influence the supply of services? What determinants of prices and frequencies can be found? And how does the location of a destination plays a role and how far spatial structure influences supply of intercity bus services? What can we learn from those experiences?

The period, which was analysed for the German market, is very short and a final assessment of the first six months is not representative for a deregulated market. Nevertheless, this very first view and assessment allows keeping the tracks of the deregulation process and giving a level to compare with as soon as evaluation processes will be carried out.

The U.S. and Germany were chosen as case studies. Beside the UK, where a number of researches exist, they can be regarded as poles of a whole continuum of regulation and deregulation in this sector, which do not provide much empirical research. The long distance bus service market in the U.S. was the first one that was deregulated in 1982. The long distance bus market in Germany just emerges. Very first trends and numbers can here be compared with the situation in the mature market.

Although the deregulation of intercity bus industries in Europe and the US has been discussed widely in the literature and for more than 30 years, there are only few authors analysing market structure or fare settings empirically. Jaffer and Thompson (1986) estimate a fare setting model in the UK market after deregulation using cross sectional information for 103 intercity express routes. In the US Tauchen, Fravel, and Gilbert (1983) focus on cost structures of the intercity bus sector applying a multiproduct cost function for its production.

The remainder of this paper is organised as follows: We discuss the framework conditions and resulting developments of the markets in Section 2 and 3. In Section 4, we present the datasets for analysing the ticket prices and discuss the results of estimations. Section 5 focuses on the spatial results in the US market. In the last section we conclude and give an outlook for further research.

The authors would like to stress that they are fully aware of the totally different circumstances between the German and the US market, so any comparative results are surrounded by caveats due to the different conditions both countries are subject to.

2. German regulation and developments in the intercity bus market on long-distances

The amendment of the Federal Passenger Transportation Act (PBefG) in January 2013 has finished 80 years of strong regulation of the German intercity bus market on long-distances. Intercity bus services are now allowed to compete with rail transport services. Competing long-distance coach services on the same route are possible. Operators are also allowed to set up stops wherever they want to as long as road safety is assured and no local public transport is harmed whereas before the deregulation the

determination of stops has been depending on the attitude of incumbent operators and authorities.

Operators still need to apply for an authorisation before they start their services. The authorisation process for a route usually takes about three months. There is no regulation on timetable or fare setting. However, some market access restrictions still exist in order to protect local public transport, which is (still) highly subsidised (see Karl, 2013). Stops of coach services must have a minimum distance of 50 km. Bus services must not be offered if parallel regional rail transport exists with journey times up to one hour for the distance between two stops of a bus route. Exceptions apply wherever local public transport provides no adequate level of service or if the demand of an existing local public transport service is not harmed significantly.

A notice on withdrawal has to be given by the operator three months before the service expires. Another new requirement is that operators have to implement barrier free accessibility for all passengers on coach services until 2016 for new buses resp. 2019 for all buses latest.²

We would like to highlight particularly that German express coach services are operating on commercial basis and no public funding is provided.

The German government reports that 23 new routes have been approved and more than 50 authorisations have been applied for in the period between 1st January and 15th February 2013.³ From February to December 2013 the number of new routes increased continuously up to 158 in June to 194 authorisations in September, the number still climbed up to 221 authorisations by December. At the time of the editorial deadline the trend was still continuing as 249 authorisations have been registered by the German government in March 2014.

By 31st December 2012 the German government stated that 86 authorisations have existed but many of them were only recently established knowing that deregulation will come on 1st January 2013.³ These routes were set up in so called niche markets, most often connecting small cities with bad rail access, because the former regulatory setting did not allow for services to other destinations.

Today, new routes are spreading all over the country, connecting primarily major cities with the highest market potential. Remote areas are also served which contradicts concerns that deregulation will lead to services only on the most attractive routes with the highest demand.

Compared to the year 2012 timetable kilometres have been nearly doubled by the end of 2013,⁴ while the number of routes has been already doubled within the first half year by 1st July 2013. According to the Federal Statistic Office, the number of passengers in the first quarter of 2013 has already increased by 9% compared to first quarter of 2012.⁵ Though, the German bus industry expects the real numbers are three times higher as the Federal Statistic Office does not include companies with less than 250,000 passengers per year, which is why especially a reasonable number of startups are not included.

Fig. 1 describes the rapid growth in the German long-distance intercity bus network from the start of the deregulation and after half year.

The bus operators are mainly small and medium sized companies. They often work together in a partnership or cooperation as one brand in order to act as one large company on the market with

² see §42b PBefG in relation with EU Directive 2001/85/EC.

³ see printed matter 17/14446 of Deutscher Bundestag dated 29th July 2013.

⁴ Extrapolation based on own calculations.

⁵ Federal Statistic Office (Statistisches Bundesamt), table 46100–0005.

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