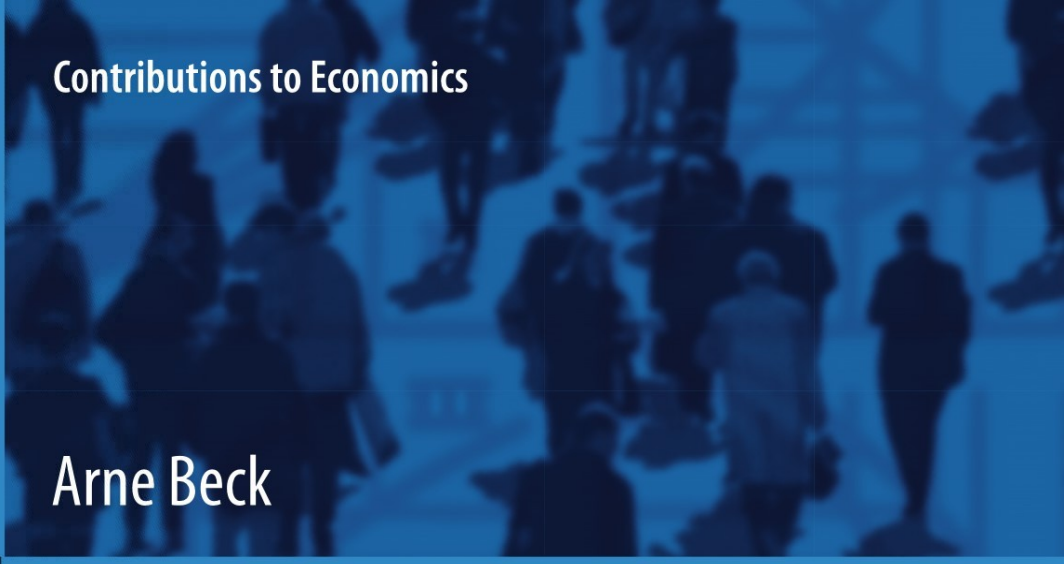

Contributions to Economics

Arne Beck

Competition for Public Transport Services

Institutional Framework and Empirical Evidence of Bus Services in Germany

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Berlin
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ISSN 1431-1933
ISBN 978-3-7908-2801-6 e-ISBN 978-3-7908-2802-3
DOI 10.1007/978-3-7908-2802-3
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012934369

Printed on acid-free paper

Physica-Verlag is a brand of Springer
Springer is part of Springer-Science+Business Media (www.springer.com)

Preface

My main motivation to write this dissertation has been to evaluate the successes, failures, and factors that influence the competition for public bus transport services. Using Germany as a case study, I explain the institutional framework of this public bus transport market, which several international researchers and market participants have described as incomprehensible. My objective is to provide a basic understanding of the players and their options, offer insights about the German model, and make policy recommendations for consideration by decision-makers and regulatory authorities whose goal is to increase competition for public bus transport services.

The empirical analysis presented is based on primary data that is usually not publicly available, supplemented by numerous expert interviews. I also have a personal interest in the subject, having spent more than 5 years as a consultant on issues of competition and market organization for public transport services (rail and road), now working at civity Management Consultants. To my knowledge, this is the first comprehensive economic analysis of, in the same regime: (1) market initiatives to operate commercial services under exclusivity, and (2) authority initiated tendering procedures for non-commercial services. I hope that this story of Germany's experience proves helpful for other researchers, companies, and policymakers in the struggle to fulfill societal expectations for public transport at a time of global economic uncertainties.

The dissertation is divided into five parts. Following Part I, the introduction, Part II presents a theoretical approach for the analysis of the regulatory framework and the opportunities it offers market participants, and relevant case studies. In Part III I empirically evaluate the conditions for tendering in this market and the experience with the introduction of competition for non-commercial services. The focus is on identifying the barriers to entry and other factors that influence the prices paid by public transport authorities. In Part IV I shift the focus to the competition for

commercial services and try to ascertain whether or not the legal setting is successful in promoting competition in this market segment. Part V summarizes the results on Germany's experience and proposes a model for organizing the contracting and awarding of public transport services in the future.

Acknowledgments

This book, which has been written as a cumulative doctoral thesis, is the product of research conducted as an external doctoral candidate at the KIT, Karlsruhe Institute for Technology (Section for Network Economics, Institute for Economic Policy Research [IWW], Faculty for Economics). Several sections were presented previously at national and international conferences, where a number of critical remarks helped to improve this study. One earlier paper received the Michael Beesley Award (honorable mention for best workshop paper presented by a person in the early stages of their career) at the 11th Thredbo International Conference on Competition and Ownership in Land Passenger Transport (September 2009, Delft, Netherlands) due to its innovative approach.

The analysis presented here is based in large part on data provided by the responsible authorities themselves, and I especially thank these institutions for their support. Furthermore, I am very grateful to those who generously provided time for expert interviews and offered insights about the public transport market. Finally, my sincere thanks to BSL Management Consultants (Lloyds Register Group), civity Management Consultants and KCW for supporting my research.

Writing a doctoral thesis requires the support of a network of colleagues, family, and friends who both provide constructive criticism and offer encouragement throughout the process. First and foremost, I thank my wife Marianne who encouraged me to write this thesis and my family and friends who helped me through the long hours required to bring this work to fruition. For comprehensive comments that significantly improved the quality of this dissertation, special thanks to Kay Mitusch from the KIT. I am grateful to my discussion partners throughout the research phase, particularly Andreas Brenck from the IGES Institute, Mathias Walter and Katrin Augustin from the Chair of Energy Economics and Public Sector Management at Dresden University of Technology; Gernot Liedtke from the KIT; Maria Nieswand from the DIW – German Institute for Economic Research, Didier van de Velde from the Delft University of Technology, Faculty Technology, Policy and Management; Rico Merkert from the University of Sydney – Institute of Transport and Logistics Studies (ITLS) at the Faculty of Economics and Business;

Peter Kain from the Federal Bureau of Infrastructure, Transport & Regional Economics of Australia; Sascha Frohwerk from the University of Potsdam, Department of Economics; Oliver Drümmer, Caroline von Kretschmann, Mathias Lahrmann, Jörn Meier-Berberich, Mirko Schnell, Kai Sellmann, Dirk Schümann, Anna Wallbrecht, and Olaf Zeike from the former BSL Management Consultants (Lloyd's Register Group); Börge Lumma from Veolia; Rainer Peters from the Landesnahverkehrsgesellschaft Niedersachsen; Markus Ksoll from Deutsche Bahn; Melanie Oertel from KCW; Gerrit Landsberg from BBG and Partner; Chris Knowles from Lloyd's Register Group; Detlev Metzner from the Münchner Verkehrs- und Tarifverbund; Michael Winnes from the Verkehrsverbund Rhein-Neckar; and Sabine Sontopski and Sven Paasch.

I also thank all of the participants in the workshops "Beyond Competitive Tendering" and "Benchmarking the Competitive Tendering Outcome" at the 11th Thredbo Conference, and in the doctoral seminars at the Workgroup for Infrastructure Policy at the Technische Universität Berlin and at the KIT. My gratitude goes to Thorsten Beckers for publishing the preliminary working paper versions on the homepage of the Center for Network Industries & Infrastructure, Technische Universität Berlin. I acknowledge the contributions of Deborah Anne Bowen, Ann Stewart, and Linda Turner for language assistance, and Heike Albrecht for graphic assistance. Without the advice and support of all these individuals (and others who I may have omitted), this dissertation would not be possible.

Abstract

Following the worldwide trend towards liberalization of public transport services German lawmakers revised the legal framework governing their country's market in the mid-1990s. Since that time the organization of the market for public bus transport services has been characterized by a dichotomous system of licenses for commercial services, where operators are granted exclusivity, and licenses for non-commercial services, where supplementary direct subsidies are tendered out by public transport authorities. This parallel structure offers market participants a wide range of opportunities for action, but also poses challenges to operators and authorities due to an awarding system and contractual relationships that fundamentally differ among the types of services. In contrast to the apparent view of legislators, the distinction between commercial and non-commercial services is not only determined by local characteristics of the services in question, but, in fact, is largely determined by the public transport authorities themselves.

An analysis of the market for non-commercial services shows that the strength of competition is determined primarily by the tendering conditions set by public transport authorities, with some factors differing at a regional level. A crucial issue is the level of uncertainty, which has been identified as a market entry barrier and a factor in price increases – for instance, in the case of net-cost contracts. The volume to be tendered out is another important issue. Other factors that influence the price to be paid by public transport authorities include conditions that influence productivity, such as the efficiency of the operating schedule, external factors such as spatial conditions, and various risk factors. With increased experience, public transport authorities produce significantly improved results, which is why higher-level authorities may achieve more successes than smaller local ones. The analysis of the market sub-segment for commercial services shows a steadily increasing market volume. Although this sub-segment relies on market initiatives by operators, its volume is still very small. Entry barriers identified in the institutional framework clearly impede a more competitive development due to the higher

level of uncertainty faced by newcomers to this market compared to the tendering market. The results presented here once again confirm the importance of a clear regulatory framework and of favorable market conditions designed by authorities to promote vigorous market development.

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List of Abbreviations

A.m.	Ante meridiem
A.o.	Among others
AEG	Allgemeines Eisenbahngesetz (Common German Law for Railways also see Glossary)
AK Vergabe	Arbeitskreis Vergabe (the AK Vergabe is the workgroup for awarding within the BAG ÖPNV)
BAG ÖPNV	Bundesarbeitsgemeinschaft der ÖPNV-Aufgabenträger in der Bundesvereinigung der kommunalen Spitzenverbände Deutschlands (the BAG ÖPNV is a joint association of local acting PTAs of the Deutscher Städtetag [German association of cities], the Deutscher Landkreistag [German association of rural districts] and the Deutscher Städte- und Gemeindebund [German association for small cities and towns])
bdo	Bundesverband Deutscher Omnibusunternehmer e.V. (pressure group of the German private [small- and medium sized] bus operators)
BGBl	*Bundesgesetzblatt* (official journal for publications on new established acts, laws, regulations, etc.)
BLFA	Bund-Länder-Fachausschuss Straßenpersonenverkehr (official commission of the ministries of transport of the federal and the state government)
BMVBS	Bundesministerium für Verkehr, Bau und Stadtentwicklung (national ministry responsible for transport)
BMVBW	Bundesministerium für Verkehr, Bau und Wohnungswesen (now re-named to BMVBS)
BVerwG	Bundesverwaltungsgericht (Federal Administrative Court of Germany)
BW	Federal state Baden-Württemberg
BY	Federal state Bavaria
C.	Coefficient

CCL	Competition for commercial lines or services (also see Glossary)
CDU	Christlich Demokratische Union Deutschlands (conservative party in Germany)
DB	Deutsche Bahn AG (national railway operator, currently biggest operator for regional bus services in Germany)
DEA	Non-parametric data envelopment analysis
E.g.	Exempli gratia
EC 1370	(EC) No 1370/2007
EC	European Community
EEC	European Economic Community
EEV	Enhanced Environmentally Friendly Vehicle (ambitious emmission standard determined by the EC)
EntflechtG	Gesetz zur Entflechtung von Gemeinschaftsaufgaben und Finanzhilfen, or Entflechtungsgesetz (Demerger Act)
Etc.	Et cetera
EU	European Union
FFM	City Frankfurt am Main
FoPS	Forschungsprogramm Stadtverkehr (research program on urban transport of the federal ministry of transport)
FRG	Federal Republic of Germany
GC	Gross-cost contract (also see Glossary)
GDR	German Democratic Republic
Global player	Consolidated operators like Veolia, Arriva, Transdev, BeneX, Abellio
GVFG	Gemeindeverkehrsfinanzierungsgesetz (Local Authority Traffic Financing Act, also see Glossary)
HE	Federal state Hesse
HHA	Hamburger Hochbahn AG (municipal operator of the city Hamburg)
HMWVL	Ministerium für Wirtschaft, Verkehr und Landesentwicklung des Landes Hessen (ministry of Hesse responsible for transport)
HSB	Hanauer Straßenbahn AG (municipal operator of the city Hanau)
Hülsmann	Omnibusbetrieb Hülsmann GmbH (private medium-sized bus operator)
HVV	Hamburger Verkehrsverbund GmbH (public transport association in the Hamburg area)
I.e.	Id est
Km	Kilometer
KVK	Kraftverkehr Kinzigtal GmbH (municipal operator, former subsidiary of HSB)
LA	Licensing authority (also see Glossary for further explanations)
Ln	Logarithmus naturalis
LNVG	Landesnahverkehrsgesellschaft Niedersachsen mbH (LA for Lower Saxony)

LR	Likelihood-Ratio Test
LT	License term
M	Management contract
MBV ST	Ministerium für Bauen und Verkehr des Landes Sachsen-Anhalt (ministry of Saxony-Anhalt responsible for transport)
Municipal	Municipal- or state-owned operators
MVV	Münchner Verkehrs- und Tarifverbund GmbH (public transport association in the Munich area)
N	Number of observations per group analyzed
NC	Net-cost contract (also see Glossary)
No.	Number
NVV	Nordhessischer VerkehrsVerbund – Verkehrsverbund und Fördergesellschaft Nordhessen mbH (public transport association in the area surrounding Kassel)
NW	Federal state North Rhine-Westphalia
O	Operator
ÖPNVG	Gesetz über den öffentlichen Personennahverkehr in Hessen (Law for Public Transport in Hesse)
ÖPNVG LSA	Gesetz über den öffentlichen Personennahverkehr im Land Sachsen-Anhalt (Law for Public Transport in Saxony-Anhalt)
P.	Page
P.a.	Per annum
P.m.	Post meridiem
PBefG	Personenbeförderungsgesetz (Passenger Transport Act [also see Glossary])
Pp.	Pages
Prob	Probability
PSC	Public service contract
PT	Public transport (as services provided to the public)
PTA	Public transport authority (also see Glossary)
PTP	(Local) public transport plan (also see Glossary)
RegG	Regionalisierungsgesetz (German Law on the Regionalization of Public Transport [also see Glossary])
RMV	Rhein-Main-Verkehrsverbund GmbH (public transport association in the Frankfurt am Main area)
RP	Federal state Rhineland-Palatine
SFA	Stochastic frontier analysis
SH	Federal state Schleswig-Holstein
SME	Small- and medium-sized private enterprise
SUR	Seemingly unrelated regressions
TfL	Transport for London
traffiQ	Lokale Nahverkehrsgesellschaft Frankfurt am Main mbH traffiQ
UK	United Kingdom
US	United States of America

VDV	Verband Deutscher Verkehrsunternehmen e.V. (association of German transport undertakings)
VHH	Verkehrsbetriebe Hamburg Holstein AG (municipal operator for the suburban area of Hamburg)
vkm	Vehicle kilometer
VLG	Verkehrsgesellschaft Landkreis Gifhorn mbH (municipal operator of the suburban district Gifhorn)
VOL/A	Verdingungsordnung für Leistungen, Teil A (Official German Contracting Terms for Award of Service Performance Contracts, Part A)
VRN	Verkehrsverbund Rhein-Neckar GmbH (public transport association in the area surrounding Mannheim)
VVOWL	VerkehrsVerbundOstwestfalenLippe GmbH (public transport association in the area surrounding Bielefeld)
ZVSN	Zweckverband Verkehrsverbund Südniedersachsen (public transport association in the area surrounding Göttingen)

List of Symbols

%	Percent
$\in$	Element of
ε	Error term
~	Approximately
§	Paragraph (as used in acts of law)
§§	Paragraphs (as used in acts of law)
€	Euro
a	Fixed costs for operators
b	Variable costs for operators
bidders	Number of bidders
C	Cost function
change	Change of operator
CPI	Consumer price index of the Federal Statistical Office
DC	Fuel or diesel costs
declwage	Labor agreement standard
deposit	Security deposit in percent of *FP*
E_O	Value as expected by operator
E_{PTA}	Value as expected by PTA
expr	Level of experience of PTA for lot *i*, measured by specific number of the lot tendered by the PTA over time
exprsum	Sum of experience of PTA, measured by sum of all lots tendered by the PTA
extopt	Option for term extension
fedstate	Federal state in which a service is located
FP	Full price to be paid by the PTA per annum to the operator
FR	Fare revenues
Hesse	Group of observations located in the federal state Hesse
HesseX	Group of observations located in the federal state Hesse, excluding observations located in the VRN and the FFM area
I	Index to adjust *p* adequately
i	Subscript for the *i*th lot
K	Set of lots
kmpervehcl	Vehicle kilometer per annum per bus on average
LC	Labor costs (primarily bus driver costs)
lengthbus	Length per bus on average
linesno	Number of lines