

# **Semester Tickets for University Students in Germany: A Success Story for 25 Years**

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## **1. Introduction**

The so-called 'Semesterticket' is a special tariff for university students in Germany which enables them to use public transport in the area of their university. Semester tickets are financed in solidarity by the students: If a university runs a semester ticket, all students automatically have to buy a ticket for one semester (6 months), regardless of whether they want to use public transport or not. In return, the students can use public transport in the area of their university for a very low semester contribution as much as they want without purchasing any extra tickets. In Germany, the first semester ticket was introduced 25 years ago in Darmstadt (1991) as a result of student initiatives. Today, most German universities run a semester ticket.

This article describes the concept of semester tickets in Germany, their development over the time and presents empirical research data on student acceptance and the effects of semester tickets on mode shift to public transport and the reduction of car ownership.

## **2. Concept of semester tickets**

Semester tickets are a special tariff for university students to use public transport, which are financed in solidarity by the students: All students of a university have to pay an obligatory solidarity contribution and automatically receive a public transport ticket for 6 months. The concrete design of a semester ticket can vary considerably from university to university, depending on the specific conditions agreed on with the public transport associations. Semester tickets differ regarding their area of validity (for example only for buses within a city or for all means of public transport in a state), prices, free carriage of a bicycle or an additional person, the possibility to use high speed trains, hardship regulations or the inclusion of public bike sharing systems in recent years (see table 1).

The responsible bodies for the contractual agreement of a semester ticket are either

the constituted student bodies ('Verfasste Studierendenschaft') or student services ('Studentenwerk') of a university and the public transport association in the area of the university. The constituted student bodies and the student services are the legally responsible corporate body or public agency, which fulfil their legally imposed obligations to provide economic, social, health and cultural support to university students<sup>1</sup>. Since students are members of these bodies or public agencies, constituted student bodies and student services have the legal right to collect contributions from the students, also for mobility purposes. The introduction of semester tickets is normally legitimized by taking a vote among the students of the respective university on whether a semester ticket shall be introduced regarding the conditions offered by the public transport association or not.

In the year 2000, the Federal Constitutional Court of Germany confirmed the lawfulness of collecting solidarity contributions for semester tickets from students after a student had sued the obligation to pay this contribution. According to the judgement, student bodies and student services have the legal right to collect contributions for semester tickets because the provision of semester tickets is a reasonable social and economic service for students during their needy time of university education. The judges did not see a problem in the fact that semester tickets might not be used by all students, because the advantages of semester tickets that can be obtained for the entire student body outweigh their disadvantages, as it can significantly reduce the costs for travelling to university. Furthermore, the judges pointed out that the financial burden for the students was acceptable, because discounts of more than 75% compared to regular tickets can be obtained and significant improvements of the local traffic, parking and environmental conditions can be achieved (BVerfG, 1 BvR 1510/99, 2000).

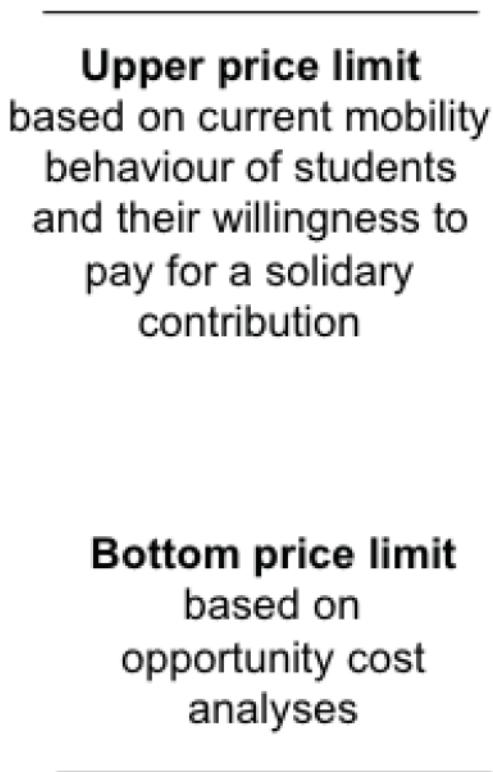
### **2.1 Price formation**

The formation of the semester ticket price is a complex process, as there is exactly

<sup>1</sup> § 53 Hochschulgesetz (HG) NRW and § 2 Studentenwerksgesetz (StWG)

one provider (transport company) and one customer (student representative). Thus, the price can not be determined in a regular business competition as it is determined for conventional goods (Preistrup, Stingel 2007: 386). At the same time, there are diversified preferences and willingnesses to pay solidary contributions by the students, which need to be considered in order to avoid the risk of losing student acceptance for paying a contribution for semester tickets (ibd.). For transport companies, the introduction of a semester ticket may imply extra costs, if service offers need to be expanded due to additional travel demand. On the other hand, transport companies may grant price reductions for semester tickets because of quantity discounts and reduced administrative expenses.

In general, the final price of a semester ticket (see figure 1) ranges between an upper price limit, which can be defined on the basis of empirical data regarding student mobility patterns and their willingness to pay for a solidary contribution, and a bottom price limit, which can be defined by an opportunity cost analysis determin-

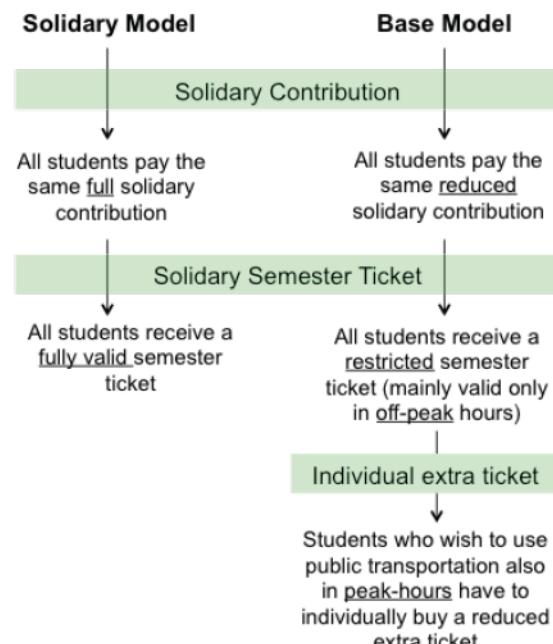


**Figure 1: Price formation of semester tickets**

ing the revenues that would be achieved if no semester ticket would exist (ibd.: 391).

## 2.2 Solidary Model and Base Model

There are two different semester ticket concepts in Germany – the so-called ‘solidary model’ and the ‘base model’ (see figure 2). For the solidary model, all students have to pay an identical obligatory solidary contribution and automatically receive their semester ticket which enables them to use public transport in the area of validity. For the base model, all students have to pay an identical reduced obligatory solidary contribution as a basic funding. Because of the reduced price, students receive either no access or only a very limited access to public transport, mainly limited to off-peak hours. If they wish to use



**Figure 2: Solidary and base model semester tickets**

public transport without any restrictions, they individually have to pay an optional extra fee.

In Germany, most semester tickets are solidary models. Solidary models mainly exist if the contract for a semester ticket is signed between a public transport company and the so-called ‘Verfasste Studierendenschaft’ (constituted student body). The broadest dissemination of base models can be found in the Federal States of Baden-Württemberg and Bavaria (Reut-

ter & Müller 2015: 6). This is because in the Federal State of Bavaria, constituted student bodies were abolished in 1973 and in Baden-Württemberg they were re-introduced only in 2012. Thus, especially in these regions, the contractual partner for semester tickets are student services ('Studentenwerke'). Student services try to keep their risk of liability low and thus prefer to sign base model contracts because the solidary contribution which students are obliged to pay is lower than for solidary models.

There are advantages and disadvantages for both solidary and base model. The advantage of the solidary model is that students immediately profit from their solidary contribution and can use public transport without any restrictions. Thus, the incentive to use public transport is higher for a solidary than for a base model. Furthermore, solidary models can be offered for a cheaper price compared to a base model which consists of a solidary contribution plus an extra fee, because solidary semester tickets are more attractive for transport companies as transport companies receive assured revenues and administrative costs are lower. In a base model semester ticket, the obligatory solidary contribution for students is lower than in a solidary model and thus student preferences on whether they want to use public transportation or not are more respected than in a solidary model.

### **3. Development of semester tickets**

Since their first introduction, many semester tickets have undergone a remarkable development, especially regarding their area of validity. At many universities, the geographical reach of semester tickets was increased impressively over the course of time, for example at the universities in the Federal State of North Rhine Westphalia (NRW). At the beginning, many semester tickets were valid only in the city area surrounding a university. In regions where student representatives joined forces, semester tickets with a larger geographical reach could be negotiated with public transport authorities, for example in the Ruhr Metropolitan Area, where the first semester ticket covered the entire transport network of the Rhein-Ruhr Transport

Association (VRR) including 20 universities (Schreiber 1996: 33). As a next step, student representatives of the universities in the state of North Rhine-Westphalia (NRW) joined forces and negotiated a state-wide valid semester ticket: Since 2008, most students in NRW can use public transport in the entire state (including cities like Bonn, Cologne, Düsseldorf, Ruhr area, Münster) for approximately 25 to 30 Euro per month.

Similar developments can be observed in other German states, where semester tickets enable students to be mobile in the entire state (some universities in the Federal States of Hesse, Brandenburg, Saarland). Also the Federal States of Thuringia, Saxony and Lower Saxony have introduced state-wide valid semester tickets. However, only trains can be used if students exit the validity area of the city of their university or the respective transport network. Students in Rhine-land-Palatinate and Saarland are working on a semester ticket which is valid in both federal states. On the other hand, the introduction of a state-wide valid semester ticket in Schleswig Holstein was rejected by the students in a vote because many students considered the ticket offer to be too expensive.

The tariff structure of the public transport system is a crucial factor for designing an attractive semester ticket offer. The less scattered and the more integrated tariff structures in a region are, the easier the implementation of a far reaching semester ticket is: In the state of Hesse, there are only two transport associations which facilitated the implementation of a state vide valid semester ticket. The 'NRW-Tarif' in NRW, a state-wide tariff for local and regional public transport since 2005, facilitated the realization of the state-wide valid semester ticket in NRW. However, even with integrated tariff structures, the technical realisation of a semester ticket can still differ from university to university like in NRW, where various kinds of different tickets exist (paper ticket, print ticket, e-ticket, chip on student card), depending on the specific framework conditions of the respective universities.

	Introduction	Price	Range	Additional services included
University of Darmstadt	1991	117 €/semester (19.50 €/month)	Public transport network Rhein-Main-Verkehrsverbund (RMV)	60 free minutes for using the bike sharing system of Deutsche Bahn since 2014 (costs: 2.38€/student/ semester); free bicycle carriage; option to purchase reduced tickets for neighbouring transport networks.
University of Cologne	1993: local/ regional validity 2008: extension to state-wide validity	168 €/semester (28 €/month)	All means of local and regional public transport in the Federal State of North Rhine Westphalia (18 million inhabitants)	Only in the region (not state-wide): free carriage of a bicycle; after 7 pm and at weekends: free accompaniment of another person and three children 6-14 years.
University of Leipzig	1996	114.50 €/semester (19 €/month) (base model until 2014, now solidarity model)	Public transport network Mitteleuropäischer Verkehrsverbund (MDV)	Semester contribution includes 1.50 €/student/ semester for mobility funds offering a do-it-yourself repair shop, reduced carsharing fares, transporter rental, 30 free bike sharing minutes for foreign students.
University of Passau	2013	16 €/semester (2.70 €/month)	Buses in the city of Passau (51 000 inhabitants)	-
University of Munich	2013	Solidary contribution: 59 €/semester (9.80 €/month) for off-peak hours; Optional: additional 147 €/semester (24.50 €/month) for peak hours	Public transport company of Munich (City of Munich and surrounding municipalities, 1.4 million inhabitants)	-
Westfälische Hochschule, Campus Bocholt	No semester ticket, because students voted against the introduction of a semester ticket at their campus. One main reason given for rejection was the insufficient connection of their campus to the public transport network.			

**Table 1: Comparison of selected semester ticket concepts at German universities**

Whereas in Germany some semester tickets were introduced a long time ago and now cover a wide validity area, there are also a few universities where semester tickets still do not exist, where they have been introduced only recently or where the geographical reach is very limited. For example, the semester ticket at the University of Passau has existed since 2013, costs only 16 Euro per semester (2.67 Euro/month)<sup>2</sup> and can be used only for buses within the small city of Passau (51 000 inhabitants). In Munich, the first semester ticket was introduced in 2013 as a base model. All students have to pay 59 Euro per semester (10 Euro/month) which enables them to use public transport in off-peak hours (1800 to 0600) and at weekends. If students wish to extend validity to peak hours, they have to pay an individual extra fee of 147 Euro per semester (24.50 Euro/month). The following table gives an overview of the different forms semester tickets can have in Germany.

In recent years, some public transport companies started initiatives to increase the price of their semester tickets noticeably. For example, the VRR in the Ruhr Metropolitan Area terminated their contract with student bodies in 2015 and offered a new semester ticket contract including a price increase of about 43% for the time period 2015 to 2019 (Blickfeld 2014). The reasons given for price increases were an increased proportion of students using the ticket and increased distances travelled by the students, according to VRR evaluations (VRR 2013). The termination of semester ticket contracts in the VRR area was followed by student protests against rising prices, however there was no option to diminish the intended price increases. Thus, additional votes among students were taken on whether to accept price increases or to reject semester tickets at all. In the end, students from all universities in the VRR area decided to keep their semester tickets and to accept the price increases in the upcoming years.

#### **4. Empirical evidence on the acceptance and effects of semester tickets**

##### **4.1 Introduction of semester tickets in the 1990s**

The introduction of semester tickets in Germany had a significant effect on the mobility patterns of students in Germany. Several studies analysed the effect of semester tickets on mode choice of students on their way to university. Blees et al. (2001: 31) demonstrated for the universities in Darmstadt a mode shift on trips to university between 1991 and 1999 due to the introduction of semester tickets with an increase in public transport use (17% to 42%), a decrease in car use (46% to 28%) and a decrease in walking and cycling (37% to 29%).

Similar effects could be demonstrated for the University of Cologne (Kling et al. 1996), where a wide approval for semester tickets could be demonstrated (70% rated the semester ticket as 'good' and 'very good'). The new mobility options also had an influence on the residential location of students, reducing the share of students living up to 10 km from the university from two thirds in 1991 to 50% in 1999 (Blees et al. 2001: 32). According to a model calculation, passenger kilometre for travelling to university thus rose by 16.5% with a decreasing share of car use and an increasing share of public transport use (*ibd.*).

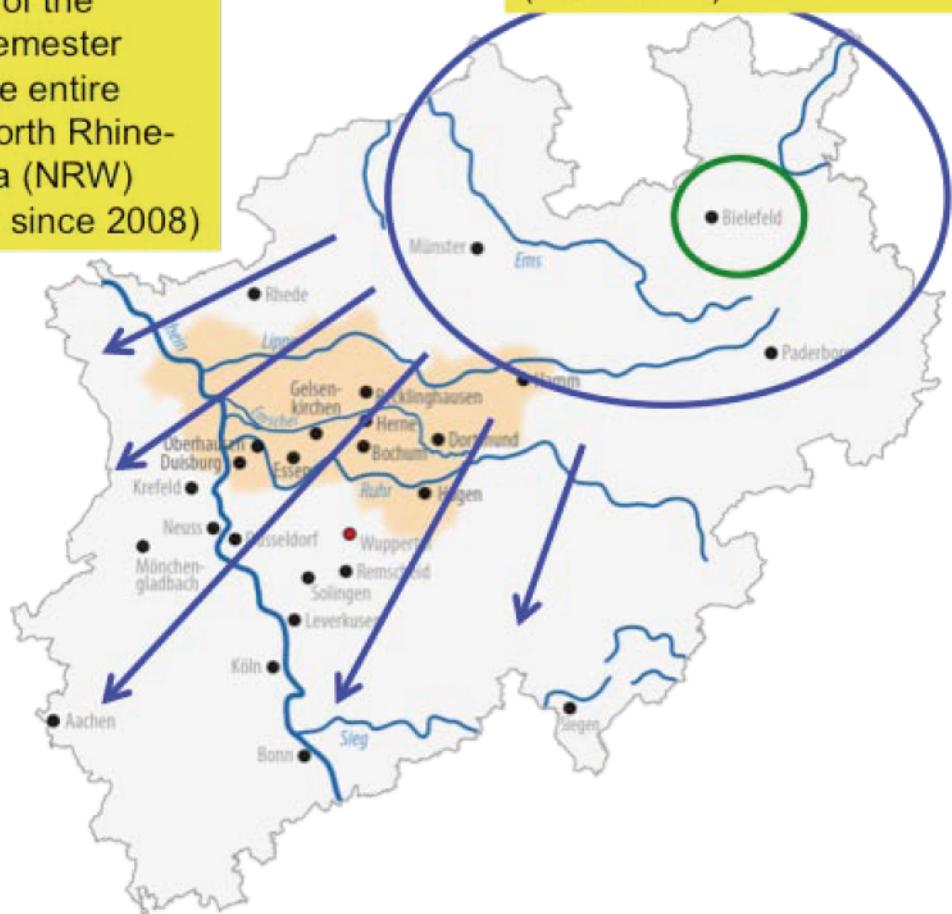
##### **4.2 Extension of semester tickets in recent years: NRW semester ticket**

The most recent evaluation of semester tickets analysed the use, acceptance and effects of the extension of semester tickets from regional to state level. Müller (2010) analysed the extension of the regional semester at the University of Bielefeld, covering the region Ostwestfalen-Lippe, to the entire state of North Rhine-Westphalia (NRW) (see figure 3).

Since 2008, the universities of NRW have the option to extend the geographical reach of their regional semester tickets to state level by purchasing an extra semester ticket ('NRW Semesterticket'). Both regional and NRW semester tickets are

Extension of the regional semester ticket to the entire State of North Rhine-Westphalia (NRW) (extension since 2008)

Regional semester ticket for Ostwestfalen-Lippe (since 1992)



**Figure 3: Extension of the semester ticket at the University of Bielefeld from regional to state level (North Rhine-Westphalia) in 2008**

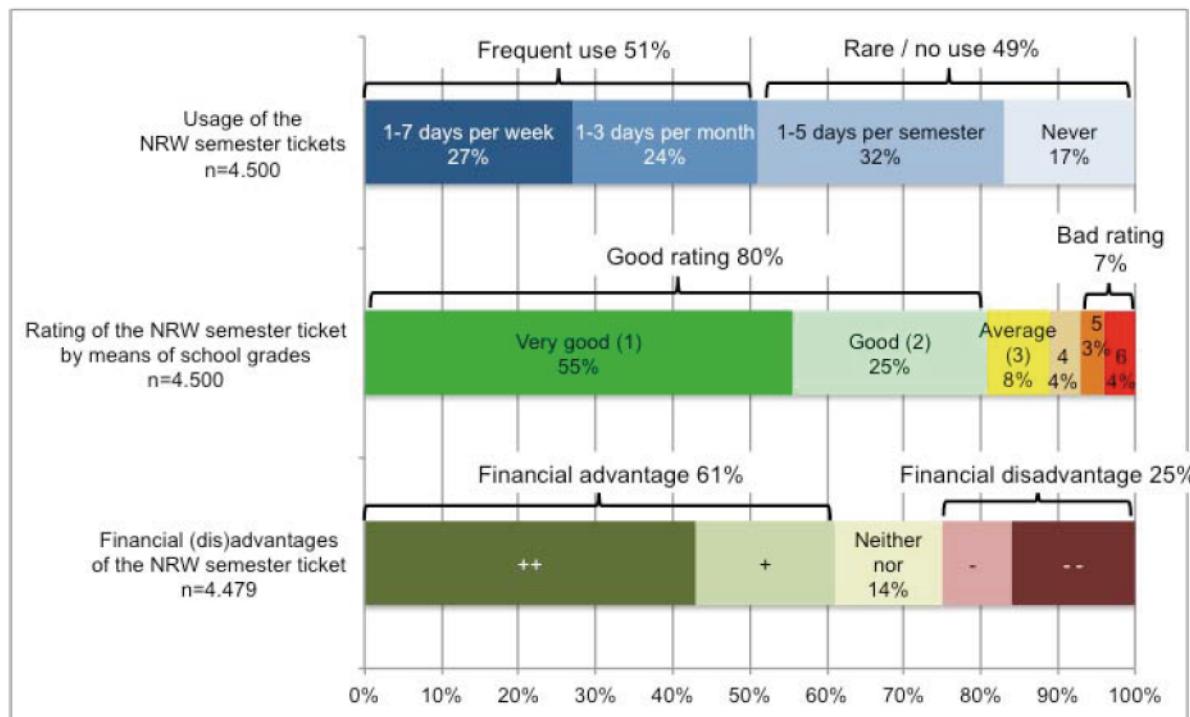
designed as solidary model semester tickets. Whilst the prices and conditions of the regional semester tickets can vary within NRW, the price and conditions of the extension to state level are the same for all universities. At the university of Bielefeld, the regional semester ticket for Ostwestfalen-Lippe currently costs 120 Euro for 6 months plus additional 48 Euro for the extension to state level (in total 28 Euro per month). All means of local and regional public transport in NRW can be used with the NRW semester ticket, covering an area of 34 000 km<sup>2</sup> and 29 cities with more than 100 000 inhabitants. Today, 90 university campuses have introduced the NRW semester ticket at their universities. Thus, more than 500 000 university students can be mobile with public transport within the entire state of North-Rhine Westphalia.

### Evaluation Methodology

For evaluating the NRW semester ticket, an online survey among the 17 458 students of the University of Bielefeld was conducted in 2010 by email invitation. Exactly 4 500 students participated in the survey (return of 26%). The online survey evaluated usage, acceptance and effects of the extension of the regional ticket to state level.

### Usage and acceptance of the NRW semester ticket

Whereas studies on the introduction of semester tickets mainly focused on student mobility on their way to university (see section 4.1), the study on the NRW semester ticket explicitly focused on the extension of the geographical reach of semester tickets (for all trip purposes).



**Figure 4: Usage, acceptance and financial implications of the extension of the semester ticket from regional to state level by the NRW semester ticket\* at the University of Bielefeld (2010)**

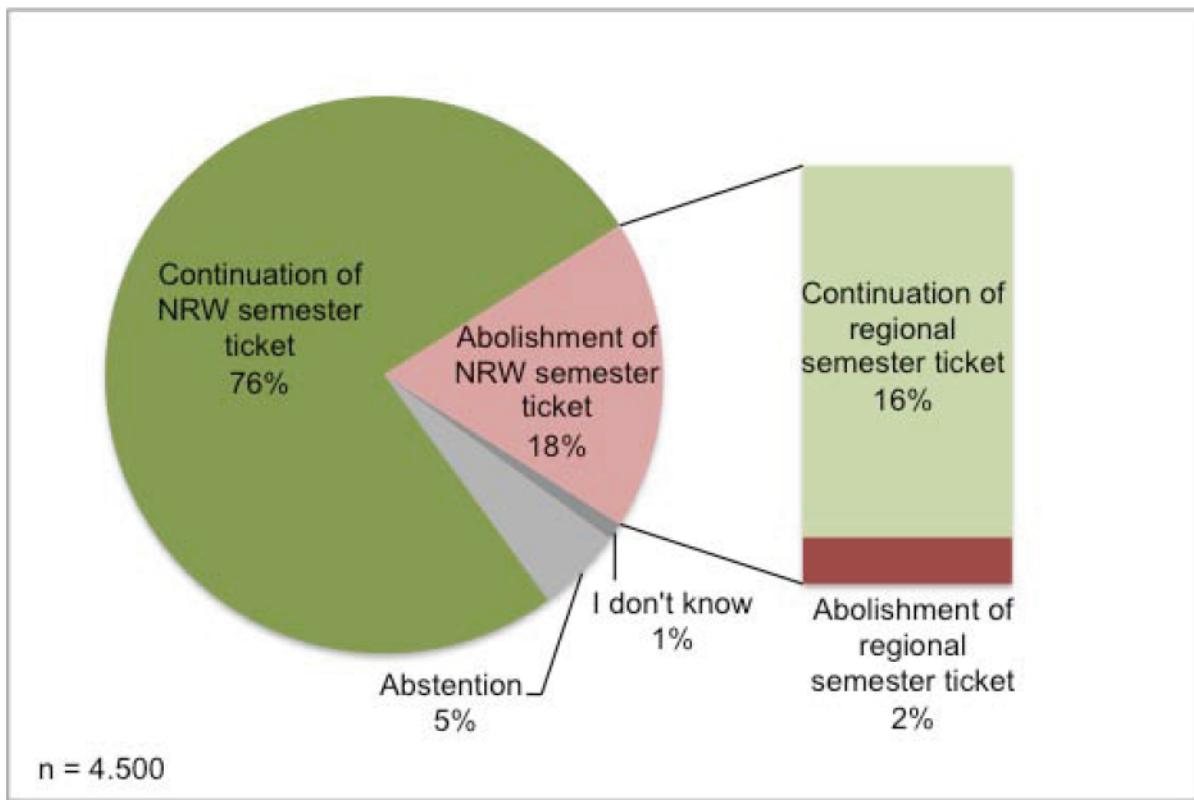
The online survey at the University of Bielefeld demonstrated that the extended reach of the semester ticket from regional to state level is frequently used by about half of the students (see figure 4). The other half uses the geographical extension of their ticket never or hardly ever.

As the third bar demonstrates, for 25% of the students the extension on state level means a financial disadvantage, for 61% the NRW semester ticket means a financial advantage. But although half of the students never or hardly ever makes use of the new mobility options and for one quarter the extension of the semester ticket to state level means a financial disadvantage, most students rate the NRW semester ticket as good or very good (80%, second bar).

Reasons for the high acceptance of the NRW semester ticket are solidary aspects ('Many students profit from the extension and depend on it'), the cheap price, the option to use the ticket one day the students might need to, flat rate preferences (preferring to pay once instead of every single ticket) and ecological reasons. Reasons for low acceptance are the obligation to pay for the ticket and the unbalanced extension of the validity area exclusively

to NRW. Since Bielefeld is located close to the border of NRW, many students come from the neighbouring state Lower Saxony and, thus, do not profit from the extension of their semester ticket, because there are no options to extend the semester ticket outside of NRW.

The students were also asked whether they would like to keep the extension of their semester ticket from regional to state level if they could choose or not. As a result, three quarters of the students support the extension of their semester ticket to state level and would prefer to keep the extension, one fifth prefers to abolish the extension (figure 5). The students disapproving the extension on state level were further asked if they would also prefer to abolish their regional semester ticket. As a result, most of those students would vote for the continuation of their regional semester ticket. Thus, in total only 2% of the students disapproved both regional and state-wide valid Semesterticket – a result which demonstrates the high acceptance of semester tickets at the University of Bielefeld in general.



**Figure 5: Acceptance of the extension of the semester ticket from regional to state level by the NRW semester ticket at the University of Bielefeld (2010)**

#### **Effects of the NRW semester ticket on students' mobility behaviour**

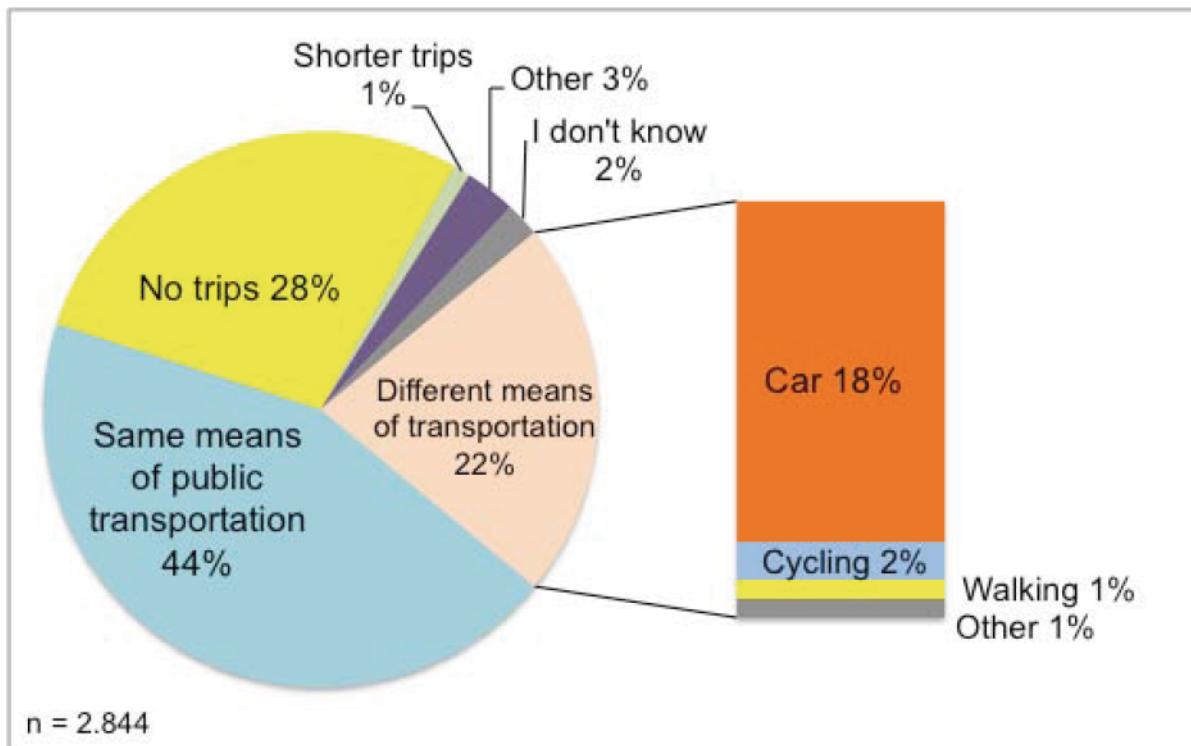
To assess the effects of the NRW semester ticket, students were asked ex-post how they would have performed trips which they travelled with the NRW semester ticket in the week before participating in the online survey if they had not possessed the NRW semester ticket.

As a result, 44% of the trips would have been travelled with the same means of public transport. 28% of the trips would not have been travelled at all. Thus, the new mobility options induced new trips and enabled students to be more mobile. 22% of the trips were shifted from other modes of transport: 18% of the trips were shifted from car to public transport and 3% were shifted from walking and cycling to public transport. The low amount of trips shifted from walking and cycling is due to the fact that mainly long distance trips are travelled with the NRW semester ticket. In the immediate surroundings of a university, the mode shift from walking and cycling to public transport is higher (see section 4.1).

#### **Effects of semester tickets on car ownership**

Besides the effects of the NRW semester ticket on mobility behaviour, students were asked which effects semester tickets have on car ownership. As a result, more than one third of the students stated that semester tickets had an effect on their car ownership. Students at the University of Bielefeld can be divided into three groups 'car owners' (28% of the students), 'former car owners' (15%) and 'car-free students' (57%). In the online survey, 17% of the car owners stated that semester tickets make them think about abolishing their car. 37% of the former car owners stated, that semester tickets were one reason why they abolished their car. And 44% of the car-free students stated that semester tickets were one reason for their decision not to purchase a car (figure 6)

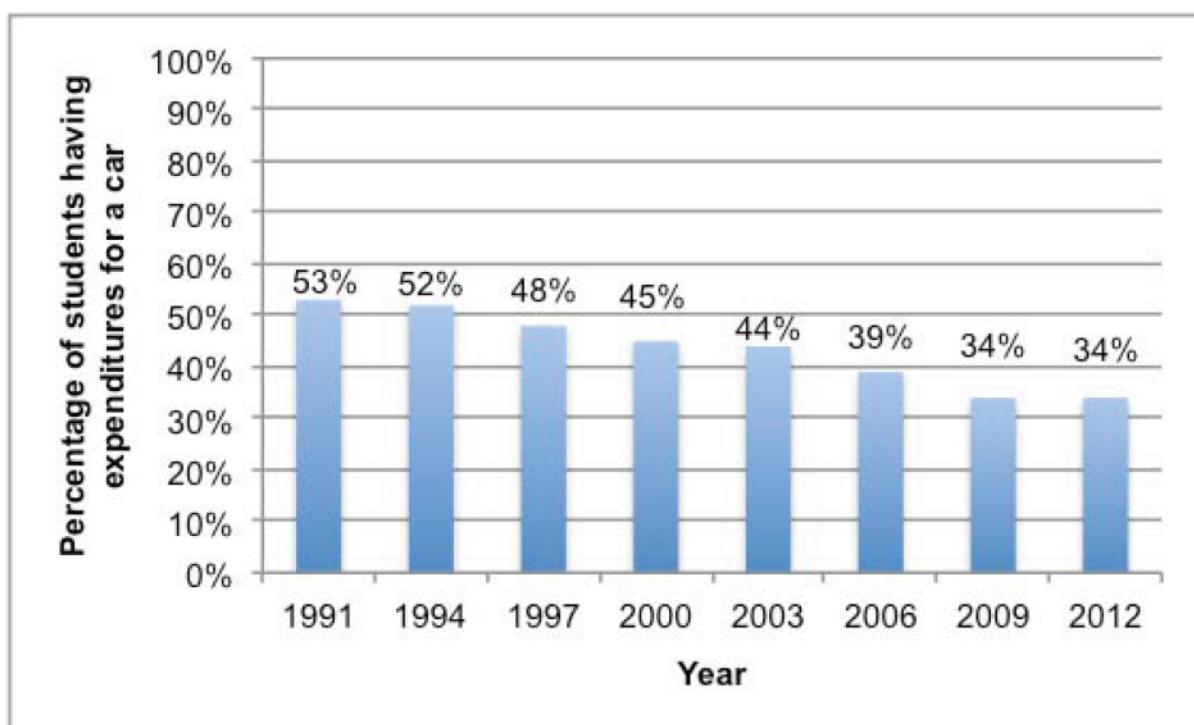
Also official student statistics give some indications on the effects semester tickets can have on car ownership among German university students: Whereas in 1991 53% of the German students had expenditures for a car, the share has declined to 34% since 2009 (figure 7). The introduction of semester tickets is pointed out as



**Figure 6: Effects of the NRW semester ticket\* on student mobility behaviour**

'How would you have travelled this trip/these trips if you would not have had a NRW semester ticket?'

\*Please note: Only trips within the extension of the semester ticket from regional to state level were evaluated, not trips travelled within the regional validity of the semester ticket. The question refers to trips which the students have travelled on specific days in the week before participating in the online survey. Source: Müller 2011



**Figure 7: Proportion of students having expenditures for a car in Germany (1991 to 2012)**

one reason for the decreasing number of students who have expenditures for a car (Schnitzer et al. 1998: 552f).

## 5. Conclusions

Today, almost all universities in Germany have introduced semester tickets for their students to use public transport and student acceptance is very high. Semester tickets are financed in solidarity by the students: All students of a university have to pay an obligatory solidary contribution and automatically receive a public transport ticket for 6 months.

Over the course of time, the geographical reach of some semester tickets was extended remarkably – up to state level. Semester tickets make a valuable contribution to sustainable student mobility, because they foster mode shifts from car to public transport and have an effect on the reduction of car ownership. Semester tickets broaden the mobility options of students, who can be mobile independently from car ownership and financial resources. Furthermore, semester tickets have a positive effect on the mobility socialisation of young people towards a sustainable mobility culture.

Unwanted effects of semester tickets are mode shifts from walking and cycling to public transport, which underline the need to develop holistic mobility concepts at universities and to implement mobility management measures promoting all kinds of sustainable mobility options for students, for example by including bike sharing systems into semester tickets or establishing mobility funds for promoting a wider range of sustainable mobility options (see for example University of Leipzig in table 1).

## Citizen tickets – Introducing a 'semester ticket for everybody'?

In Germany, there are currently intensive discussions on the future financing options of the German public transport system due to eroding financing bases: public financing is decreasing because of precarious budget situations and debt ceilings, revenues from the energy sector which are used to cross-finance public transport are diminishing and there are significant de-

mand drops in some regions due to demographic changes. At the same time, there is a high infrastructural backlog demand for the transport system and additional investments are needed due to social, environmental and climate protection reasons. Hence, new financing instruments are currently discussed in Germany, like the imposition of levies, contributions and taxes for potential users and third-party beneficiaries of public transport services (employers, trade, real estate and property owners, motorists and the general public). In this context, the introduction of a citizen ticket ('Bürgerticket') at community level, a 'semester ticket for everybody', is discussed both scientifically and politically (Maaß et al. 2015; Zimmer 2015; Bracher et al. 2014; Maaß & Waluga 2014). Citizens would be obliged to pay a regular contribution for public transport and could, in return, get access to public transport to a certain extent. Whereas free public transport had been implemented in two small German cities in the past (Templin, Lübben), a citizen ticket has not yet been implemented in Germany or elsewhere.

Since semester tickets have been implemented at almost all universities in Germany, they are well accepted and highly appreciated by the students and make a valuable contribution to sustainable mobility, the options to introduce a citizen ticket should be further analysed. Similar ticket concepts exist already today (guest tickets, event tickets, semester tickets). Citizen tickets might offer a solution for constrained public finances and open up new possibilities for designing a high quality, affordable, sustainable and climate-friendly transport system. The author proposes to test and analyse the options to introduce a citizen ticket in the realistic settings of a pilot project at municipal level.

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