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Analysis of the effects of establishing affordable annual tickets in Vienna

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Abstract

The city of Vienna currently has more than 1.84 million inhabitants living on a settlement and traffic area of about 208 sq. km. The inhabitants of Vienna cover 73 % of their routes via ecomobility. The share of public transport in the modal split amounts 39 %. In May 2012, Austria's capital introduced the Viennese model, which led to a considerable reduction of prices for annual and monthly public transportation tickets while prices for other tariffs increased.
This paper intends to assess the effects of the tariff measures implemented in the Viennese Model. For this purpose, at first the traffics development of the city of Vienna over the past 10 years is outlined, analysed and interpreted regarding its cause-and-effect relationships. Furthermore, extensive analyses have been conducted to identify and quantify significant effects on passenger growth in Vienna. The paper concludes with indications for transferability of the Viennese model to other cities.

Keywords: public transport, mobility as a service, info systems, ticketing, new business models, Viennese model

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1. Introduction

For several years now, the city of Vienna has been pursuing the goal of a sustainable urban development and transport planning to ensure a high quality of life for its inhabitants. According to the current urban development plan 'STEP 2025' establishing mobility without car ownership is an essential objective. In concrete terms, 80% of all trips of the Viennese inhabitants should be covered by ecomobility (public transport and non-motorised private transport), and thus only 20% of all trips can be covered via private car by the year 2025 (Stadtentwicklung Wien, MA 18 2015).

For this reason, a revised tariff system for the use of public transport in Vienna was introduced in May 2012, the so-called 'Viennese Model'. While the prices for annual and monthly tickets have been reduced considerably, the prices for other tariffs have increased remarkably (e. g. single trip by approx. 17%). Two years later, the number of annual ticket customers almost doubled. At the same time, the municipal subsidy is said to have increased as well (Die Presse 2015).

The research project was designed to analyse and interpret transportation planning and traffic development in the city of Vienna regarding its cause-and-effect relationships in order to obtain information on the effects of the tariff measures implemented in the Viennese model. The period between 2006 and 2016 was chosen as the period of observation. Whenever an indication of a year refers to a specific point in time, it refers to the beginning of the year, e. g. the number of inhabitants. To classify the results for Vienna, the results were compared with those of major German cities based on meaningful parameters. Due to its scope, this paper is limited to the main findings regarding traffic development and transportation planning in Vienna as well as their interpretation and conclusions for the comparison with other cities.

2. Summary of the development of Vienna in the period from 2006 to 2016

2.1 Development of limited changeable framework conditions

Vienna is the capital as well as the economic and cultural centre of the Federal Republic of Austria and at the same time one of nine Austrian provinces. Vienna, as the most populous city in Austria, has a population of around 1.84 million inhabitants and a total area of 414.87 sq. km (status: 01.01.2016). The settlement and traffic area (STA) amounts approx. 208 sq. km and covers about half of the total area of Vienna. The population density is thus over 8,800 inhabitants per sq. km of the STA. The population of Vienna has been growing for years due to a positive birth rate and migration balance. While the birth rate has increased steadily since 2000 (2015: +3,405 people), the migration balance - which was consistently positive in the period under review - is more fluctuating. In 2015, the migration surplus amounted to approx. 39,000 persons (Magistrat der Stadt Wien, MA 23 2016a, Magistrat der Stadt Wien, MA 23 2016b). The level of motorisation is relatively low with 382 cars per 1,000 inhabitants compared to other major cities (Berlin: 327 cars per 1,000 inhabitants, Munich: 522 cars per 1,000 inhabitants).

As Austria's economic centre, the city has almost one million jobs, which are used by 265,000 commuters (as of 2013) in addition to the local population. Around 85,000 Viennese commute from the city to other communities to work. While the increase in insured employment (9.1 %) in the period under review was roughly proportional to the increase in the number of inhabitants (10.1 %), the number of unemployed persons increased disproportionately strong by approximately 53 %. The unemployment rate of 13.5% in 2015 was significantly higher than in the five largest cities in Germany (Magistrat der Stadt Wien, MA 23 2016a, WKO 2016).

The number of students has increased steadily during the period under review. In the winter semester 2015/16, around 195,000 students were enrolled in Vienna, making Vienna the university location with the most students in the German-speaking region (Magistrat der Stadt Wien, MA 23 2016b). By way of comparison, the number of students in Berlin in 2014 was 171,000 (Statistisches Bundesamt 2016). However, the number of pupils was almost constant in the period under review, at around 228,000 pupils in the school year 2014/15 (Magistrat der Stadt Wien, MA 23 2016b).

Vienna has also gained in attractiveness for tourists in recent years, which is reflected in the increasing number of overnight guests. With about 14.3 million overnight stays in 2015 and 6.5 million overnight guests, Vienna is one of the most popular cities in European city tourism (Stadt Wien 2017b, Stadt Wien 2017c, Telekurier Online Medien GmbH & Co KG 2015). Between 2007 and 2016, the number of overnight stays has increased by 60%

and the number of overnight guests by 75%. The difference is due to the slight decline in the average length of stay of overnight guests. With an average of 2.17 (status 2016) overnight stays per overnight guest, Vienna is a typical destination for city travellers (Stadt Wien 2017b, Stadt Wien 2017c).

2.2 Demand-related measures

In the period under review, the public transport system has been continuously expanded. While the high-ranking public transport network (subway and suburban railway) was already well developed in the inner-city area more than 10 years ago, the further planning and implementation aimed to including the population living in the periphery. To increase the share of trips by public transport, certain subway lines were expanded gradually and the public transport services were extended accordingly (Stadt Wien 2017f). In terms of trips, the subway has the highest importance in Vienna of different means of public transport (Wiener Linien 2016). The expansion of the suburban rail network intends the achievement of a modal shift in regional commuter traffic (Stadtentwicklung Wien, MA 18 2013). The trams and buses in Vienna are mainly used as feeders to the high-ranking network, which is why the focus has been on developing tangential links. Network and infrastructure deficiencies were systematically analysed and improved through targeted line extensions (Stadtentwicklung Wien, MA 18 2008, Stadt Wien 2003). In addition, Vienna is systematically giving priority to public transport through technical upgrading of the light signal system. Together with the separation of tram and bus traffic from the remaining traffic, e. g. by means of special traffic lanes for public transport, the speed and reliability of transport will be increased (Stadtentwicklung Wien, MA 18 2013).

Vienna is located within the service area of the transport association 'Verkehrsverbund Ost-Region' (VOR), which is responsible for planning and the supply of regional transport services as well as for the pricing policy and revenue sharing in the area served. The development of tariffs and fares in Vienna is based on a season ticket and fare volume strategy. The season ticket strategy is designed to attract regular customers by making the use of season tickets increasingly attractive compared to the use of single tickets, i. e. the usage threshold of season tickets is falling. The price level in Vienna is relatively low compared to German cities, especially in the season ticket segment.

Table 1 shows the price development between 2006 and 2017 for the single, weekly, monthly and annual tickets as well as changes in the usage thresholds. While the prices for the single ticket and the weekly ticket rose continuously in the period under consideration, a different picture emerges when looking at the monthly and annual ticket. Here, prices initially increased until 2012 together with the prices of the single and weekly tickets. With the introduction of the Viennese model, the price of the annual ticket was reduced by just under a fifth from 449 euros to 365 euros (Die Presse 2011). Since July 2014, no further price adjustments have been made for all tickets issued by Wiener Linien (Vienna lines - local transport company). At the same time, Wiener Linien also reportedly enforced extensive ticket controls, whereby fare dodging is punished with a fine equivalent to 103,- euros (Wiener Linien 2017a).

Table 1: Development of prices and usage threshold for various tickets in Vienna between 2006 and 2017 ; Sources: Die Presse 2011, Krone Multimedia GmbH & Co KG 2007, Vienna Online 2007, Wiener Linien 2017b

	Price			Usage threshold compared to a single ticket		
	2006	2017	Difference	2006	2017	Difference
Single ticket	1,50 €	2,20 €	47 %			
Weekly ticket	12,50 €	16,20 €	30 %	9 trips	8 trips	-12 %
Monthly ticket	45,00 €	48,20 €	7 %	30 trips	22 trips	-27 %
Annual ticket	409,00 €	365,00 €	-11 %	273 trips	166 trips	-39 %

In 1993, the first comprehensive parking management system was introduced for a Viennese district (inner city centre). Since then, parking space management has been continuously expanded so that since 1999, the entire public parking space is managed in all inner-city districts. In Vienna's districts outside the city centre, too, short-distance parking zones covering the entire area were partially or completely designated. Depending on the district, the parking time is limited to two or three hours and for every additional half hour 1.05 euros will be charged (price 2017) (Stadt Wien 2017d). The costs increased from 0.60 euros per half hour of parking in March 2012 to 1.00 euro (ÖRF 2011). As a result, the revenue from the parking fees increased considerably and the demand for parking spaces in the short-stay parking zones was significantly reduced (Stadt Wien 2017g).

2.3 Development of the travel demand

Passenger volume

The change in passenger volume is a major factor in assessing the Viennese model and other measures. Since the measures relevant to demand do not only affect local traffic in the city of Vienna, but also the origin-destination traffic of the capital, the volume of passengers in the origin, destination and local traffic was considered. The patronage in Vienna is derived from the passenger trips published by the operating transport companies. Until 2013, the VOR published the patronage of the associated transport companies as well as the number of connecting passengers. Based on this data, the patronage of Vienna was estimated and forecast until 2015. Especially the inner-city function of the regional bus and suburban railway traffic of the ÖBB, which has a high passenger volume, leads to uncertainty (Ostermann / Rollinger 2016). Further uncertainties derive from

- associated transport companies, whose service area lies completely or partially outside of Vienna,
- patronage of the ÖBB, which is not a part of the VOR and
- inconsistent units of the patronage within different publications.

Passenger demand in the city of Vienna's origin, destination and local traffic increased by more than 25 % from 773 million passenger trips p. a. to 971 million passenger trips p. a. in the period from 2005 to 2015. The annual increase varies between -0.6 % and 4.1 % p. a. The share of passengers carried by the Wiener Linien is around 90 % of passenger demand (own calculations based on VOR 2008, VOR 2010, VOR 2012, VOR 2013, VOR 2015). Wiener Linien are responsible for subway, tram and bus traffic in Vienna. In addition to the Wiener Linien, ÖBB carried around 86.5 million passenger's trips in Vienna in 2015 with the suburban railway and around 10 million passengers in regional bus transport (ÖBB-Holding AG 2016). Wiener Lokalbahnen (WLB) has managed to record 12.4 million passengers in rail traffic and around 2.7 million bus passengers in 2015 (WLB 2016).

With the implementation of the Viennese model, the development of the sold annual tickets is also becoming the focus of attention. Figure 1 shows that the number of annual tickets sold has consistently increased in the period under review. While the increase remained largely constant in the period prior to 2012, the year 2012 is clearly outstanding with an increase of 37 % p. a. in annual tickets sold. However, it is noteworthy that the number of sold annual tickets in the period from 2000 to 2011 increased by approx. 80.000 in total, whereas the increase from 2011 to 2012 alone was around 140.000 tickets. This could be explained most probably by the fact that prices of the annual ticket were drastically reduced from 449 euros to 365 euros in mid-2012. In the following years 2013 to 2016, average annual increases of 9 % were achieved. However, the annual growth in annual ticket sales is declining and was around 5 % in 2016. In 2016, about one in three residents held an annual pass.

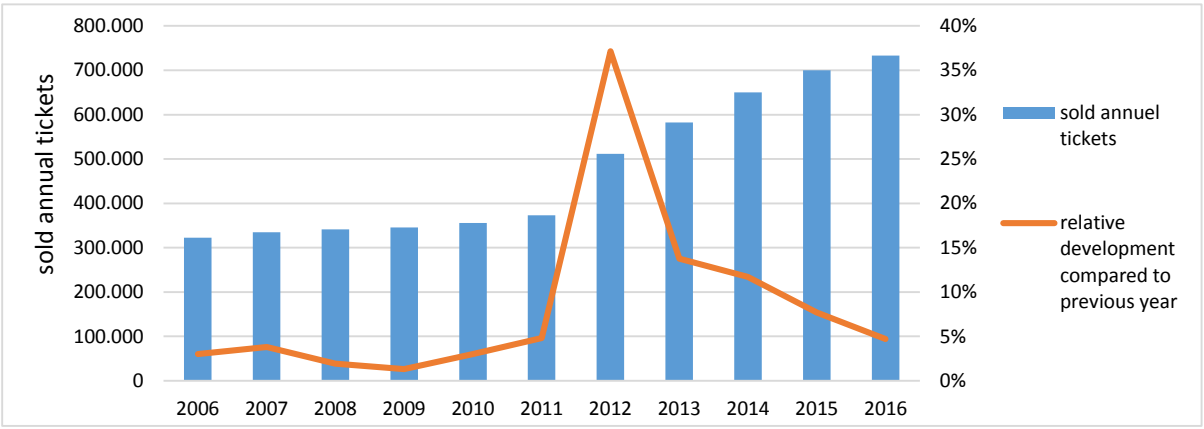

Figure 1: Development of sold annual tickets (Wiener Linien) ; Sources: Wiener Linien 2007, Wiener Linien 2017b

Modal Split

As early as 1993, the ecomobility's share in the modal split of the population of Vienna was 60 % (Wiener Stadtwerke Holding AG 2013). This share was increased to 73 % by 2015. Between 2000 and 2015, the market shares of local public transport and cycling increased significantly, with the share of trips carried out using public transport increasing by 6 percentage points to 39 % (increase of approx. 18 %), the proportion of trips by bicycle by 3 percentage points to 7 % (increase of approx. 75 %). Compared to cities of similar size, Vienna has a relatively high share of public transport and a very low proportion of bicycles. According to the current urban development

plan STEP 2025, the share of the ecomobility should reach 80 % by 2025 (Stadtentwicklung Wien, MA 18 2015). Given the growing population, increasing the proportion of the ecomobility is essential to maintain the quality of life of the city and to avoid permanent congestion in the road network (Stadtentwicklung Wien, MA 18 2015).

Level of motorisation

The availability of cars has a major influence on the mode choice: Persons with constant car availability use a car much more frequently than persons who do not have a car or only occasionally have one (Sommer / Krichel 2012). In 2015, the degree of motorisation (car density) in Vienna was 382 cars per 1,000 inhabitants, roughly at the same level as in Berlin. The number of passenger cars in the city of Vienna increased between 2005 and 2015 by approx. 5 %. In the same period, the number of inhabitants increased stronger, namely by 10 %, so that the car density decreased by 5 % (Magistrat der Stadt Wien, MA 23 2016a).

2.4 Development of business parameters

The revenues of the transport companies operating in Vienna were taken from the published data of the VOR. The revenues in the data are shown differentiated by transport company until 2013. For the following years, only the revenues of the entire VOR are published. This data basis was used to estimate the revenues of the transport companies based on passenger demand in origin, destination and local traffic of Vienna. Uncertainty arises here above all in the allocation of ÖBB's revenues as a suburban railway and regional bus operator.

Except for 2011, transport companies' revenues increased continuously. In 2015, approximately 507 million euros were generated by passengers using public transport in Vienna, which represents more than 90 % of the total VOR (551 million euros). Wiener Linien accounts for about 75 % of the total VOR revenues (own calculations based on VOR 2006, VOR 2008, VOR 2010, VOR 2010, VOR 2012, VOR 2013, VOR 2015).

The distribution of revenues of Wiener Linien according to fare types also provides an impression of the significance of the different fare types. Due to the pursued season ticket strategy, it is not surprising that almost three quarters of the fare revenues are generated by the sale of season tickets and, after all, around 41 % are generated by the sale of annual tickets alone (Wiener Linien 2016).

Even after consultation with the actors in Vienna, data on costs and the need of subsidy were not available. According to press reports and the financial statements of the city of Vienna, the municipal subsidy increased by about 50 million euros in the year after implementation of the Viennese model. However, a detailed breakdown of the operating expenses is not known in this context (Stadt Wien 2013, Stadt Wien 2014).

2.5 Financing of public transport

Since public transport does not normally cover the costs, it is necessary to receive (large) subsidies from the federal and state governments to maintain a basic transport supply and to expand the infrastructure. The ÖPNRV-G (ÖPNRV-G 1999) contains not only information on the receipt of the basic transport supply, but also the organisational and financial basis for the service of the public transport in Austria as well as the responsibilities and the legal framework of the transport associations. Rail services which extend the basic transport supply and the general ordering of bus services need to be financed by the federal states of Austria themselves (e.g. through agreements on transport services between the ÖBB (Austrian Federal Railways) and the federal states).

Since the ‘Gesetz über die Erhebung einer Dienstgeberabgabe’ (Law on the levying of an employer's levy) was passed by the ‘Wiener Landtag’ (state parliament of Vienna), the city of Vienna has received a contribution from Austrian employers. These contributions are intended exclusively for the expansion of the subway system. Since June 2012, employers pay two euros per employee and duration of employment to the city of Vienna (starting from the beginning of the week). Before June 2012, the levy amounted to 0.72 euros per employment relationship and commenced week (Gesetz über die Einhebung einer Dienstgeberabgabe 2012; Stadt Wien 2017a). Employer's levy revenues have increased by more than 200 % between 2011 and 2013, from around 22 million euros to over 67 million euros (Stadt Wien 2014).

In addition to the employer’s levy, Vienna generates considerable income through parking fees. The revenue must be used to facilitate inner-city traffic. With the agreement of the government between the leading political parties 'SPÖ' and 'die Grünen' in 2010, the share of revenue from parking space management for the funding of public transport has increased extremely from 2010 (39.3 %) to 2011 (81 %) (Die Presse 2016). At the same time, revenues from parking space management have increased by more than 40 million euros since 2011 to more than

110 million euros in 2015 as a result of an increase in parking costs (Stadt Wien 2012, Stadt Wien 2016).

3. Interpretation of the results

Travel demand is mainly driven by the spatial and settlement structure, the range of transport services with its characteristics (including costs of using) and individual travel behaviour. Travel behaviour is the result of a complex decision-making process based on values and attitudes of the individual, the perceived environment and various restrictions (e. g. temporal, spatial and financial restrictions). Changes in the influencing variables of behaviour can therefore influence the behaviour itself. Regardless of travel behaviour, changes in the spatial and settlement structure, which are generally determined by demographic and economic developments, in some cases also by political decisions, lead to changes in the travel demand. The interrelations between the main factors influencing travel demand and travel behaviour are illustrated in Figure 2. This figure already constitutes a simplified representation of the development of traffic. It shows multitudinous influencing variables, which are partly controlled by measures, but also partly by external processes (framework conditions) (e. g. global economic, and demographic development).

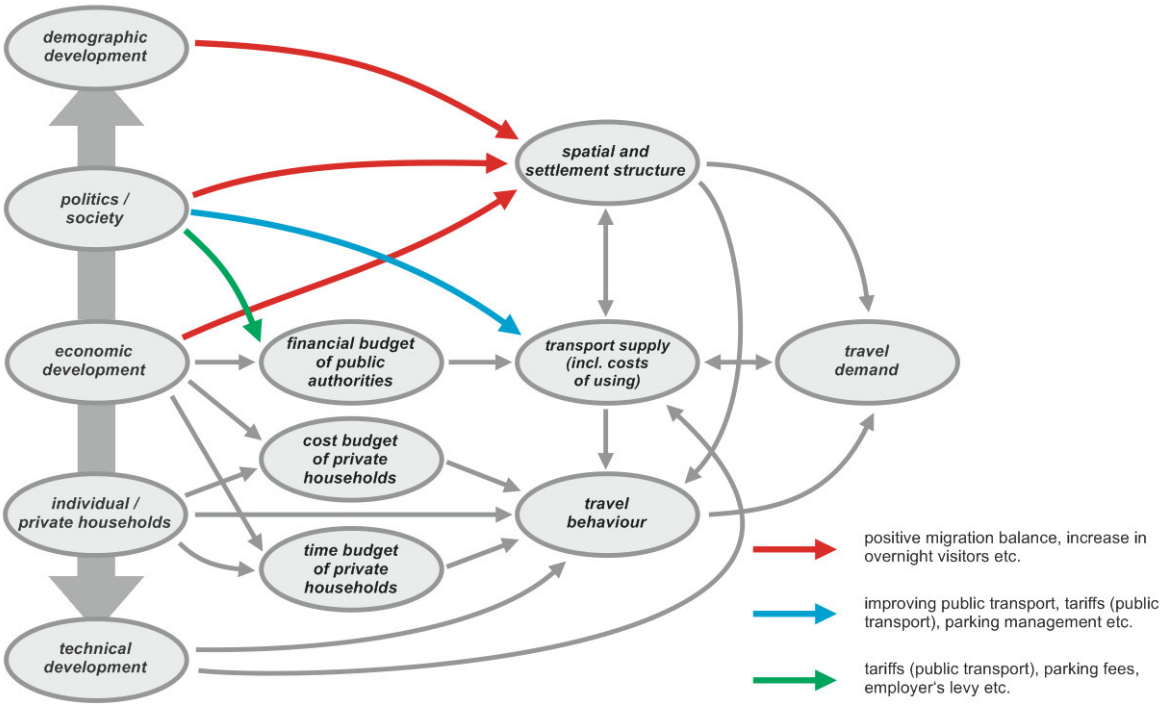

Figure 2: Cause-effect-relationship of traffic influencing factors ; Source: Sommer 2016

Between 2005 and 2015 the passenger volume in public transport in Vienna increased by about 26 % while the share of public transport in the Viennese population rose by about 18 %. This is a positive development from the point of view of the national economy. It is the result of targeted measures in different areas and changes of framework conditions, which are almost unchangeable. A lot of the framework conditions have developed positively regarding passenger demand, but also regarding the share of public transport of the traffic volume, as shown in Table 2.

For more than 20 years now, the city of Vienna has been pursuing sustainable and integrated transport planning that promotes the ecomobility and particularly public transport in the city with various measures. In Vienna, many demand-related measures were implemented which undisputedly influenced travel demand towards the defined goals. These goals constitute changes in public transport tariffs, the expansion of the public transport network, the expansion of comprehensive parking management together with an increase in parking fees and the construction of new urban districts at public transport hubs. In contrast to many other municipalities, the city of Vienna has implemented an effective combination of push and pull measures. Simultaneously with the implementation of the Viennese model (pull measure), parking fees in the inner-city districts were considerably increased (push measure).

It should be noted that the price reduction due to the implementation of the Viennese model is essentially a political decision by the GRÜNEN and SPÖ. Wiener Linien originally planned to increase ticket prices by around 13%.

The opposing parties have also expressed their objections to the tariff adjustment, as this would result in considerable additional costs for the transport companies and the municipal administration (Gemeinderat der Bundeshauptstadt Wien 2011a). Due to the financial impact on the transport company, additional financial resources of 24 million euros were necessary and granted as part of an municipal subsidy in 2011 (Gemeinderat der Bundeshauptstadt Wien 2011b). It can be assumed that the additional costs will be covered mainly by the increased revenues from parking fees. At the same time, the employer's levy can be used for the expansion of the subway system in order to increase the capacity of the public transport system.

When assessing the effectiveness of the individual measures, it should be borne in mind that individuals generally prefer alternatives, that – if possible – do not change routinized behaviour. However, choosing a different mode of transport is an alternative that requires a major behavioural change and cognitive performance (information on other modes of transport and their use is required). In addition, it should be noted that only a part of the persons has the freedom of choice for individual alternatives, since objective and subjective reasons speak against certain means of transport (Sommer / Krichel 2012).

Table 2: Summary of the development of framework conditions in Vienna between 2005 and 2015; Sources: own calculations based on Magistrat der Stadt Wien, MA 23 2016a, Magistrat der Stadt Wien, MA 23 2016b, Stadt Wien 2017b, Stadt Wien 2017c, Stadt Wien 2017e, Statista GmbH 2017a, Statista GmbH 2017b, Statistik Austria 2016b, WKO 2016

Parameter	Development between 2005 and 2015
Inhabitants	11 %
Pupils[1)]	1 %
Students	49 %
Insured employment relationships	9 %
Unemployed	53 %
Overnight guests[2)]	75 %
Overnight stays[2)]	60 %
Level of motorisation	-5 %
Fuel prices (Diesel; Super-grade petrol)	10 %; 14 %

[1)] 2006 – 2014 [2)] 2006 – 2015

Therefore, it is not surprising that changes in public transport tariffs, especially if fares are significantly changed between tickets, have a greater impact on public transport customers than on other individuals. After the implementation of the Viennese model, an annual ticket is worthwhile for 14 public transport trips per month compared to a single ticket. For holders of a monthly ticket, the annual ticket is worthwhile after only eight months. While the number of annual ticket customers has almost doubled between 2012 and 2016, passenger demand has increased by only 8 % over the same period. Consequently, it can be assumed that the increase in annual tickets was mainly due to ticket migration and less to the acquisition of new customers. For an empirical study of the effects, individual data of the cardholders would be necessary, but are not available.

While there are sufficient studies on the factors influencing transport demand in public transport and on the influence of the price policy on the patronage, at the same time it must be noted that uncertainties exist with regard to the framework conditions of many studies (Paulley et al 2005). Furthermore, the price reduction that took place in Vienna was comparatively drastic. Hence, in addition to the above-mentioned qualitative statements, the impact of two effects on passenger demand was estimated using a model calculation. The population effect describes the change in passenger demand resulting solely from changes in size, age and gender structure of the Viennese population. It is assumed that the travel behaviour, differentiated according to age group and gender, does not change between the before and after state. The tourism effect describes the change in passenger demand resulting entirely from the change in the number of overnight guests. Analogous to the population effect, a constant travel behaviour between before and after state is assumed. In order to draw conclusions about the effectiveness of the Viennese model, the effects are estimated for two periods, before and after implementation of the Viennese Model (2006 to 2012 and 2012 to 2016).

Since the mobility data for the Viennese population were not available in the required differentiation according to age and gender, the relative differences in behaviour between the individual groups for major cities in Germany were determined from the MiD 2008 (infas / DLR 2010). These relative differences were then applied to the

aggregated mobility parameters of the Viennese population.

Figure 3 shows the extent of the two effects mentioned above on passenger growth in the period before and after implementation of the Viennese model. In the period between 2006 and 2012, approximately 26 % of the increase in passenger numbers can be explained by the population and tourism effect, whereas in the period between 2011 and 2015 around 68 % can be explained by the population and tourism effect. Assuming that all effects are valid in one direction, i. e. that all measures and framework conditions lead to an increase in passenger demand, the impact of 74 % before and 32 % after implementation of the Viennese model can be attributed to other effects. Other effects include all influencing variables that do not influence changes in demographics and the number of overnight guests. These include above all the demand-related measures implemented, including the Viennese model.

After the Viennese model has been implemented, demographic changes have a much greater impact on passenger growth than all the measures taken together. This is consistent with the development of the public transport share in the modal split of the Viennese population, which has not changed between 2012 and 2015. The pricing policy measures - mainly the implementation of the Viennese model and an increase in parking fees - therefore appear to have only had a minor impact on passenger demand and the choice of transport mode. However, the initial situation must also be considered when assessing the effectiveness of the (pricing-policy) measures. With a modal split share of almost 40 %, it is considerably more elaborate to gain additional market share than with a significantly lower market exploitation.

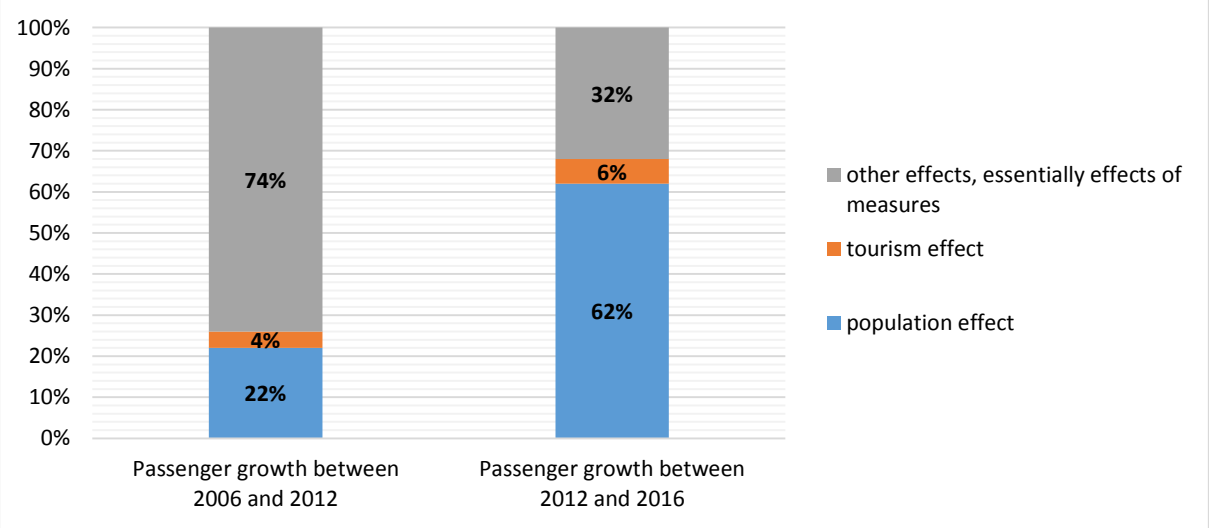

Figure 3: Effects on passenger growth ; Sources: own calculations based on BMVIT 2016, infas / DLR 2010, Stadt Wien 2017b, Stadt Wien 2017c, Statistik Austria 2006, Statistik Austria 2013, Statistik Austria 2016a, Statistik Austria 2016b, VOR 2006, VOR 2012, VOR 2015

4. Conclusion

The travel demand in Vienna cannot be derived monocausally from one influencing factor, but is the result of a complex process in which several influencing variables interplay towards a high public transport use only a few variables counteract. The extremely low fares therefore undisputedly have a certain share of the effects on traffic. However, as mentioned above, it can be assumed that other effects have a higher significance. Mainly two conditions that can only be influenced in the long term are responsible for the high demand for public transport:

- The availability of cars, derived from car ownership, is one of the most important influencing factors in the choice of transport mode. A low level of motorisation therefore makes it easier for public transport service providers to attract customers. However, the level of motorisation is also the result of an offer that allows autonomous mobility without private cars, which was undoubtedly available in Vienna.
- Compact and mixed settlement structures are perfect for public transport. A high population and potential density (potential unit per sq. km STA) reduces the effort for the development and operation of public transport. ‘Potential' refers to the potential for passenger demand, which is calculated from the sum of the

respective numbers of jobs, pupils, students and inhabitants aged six years and over. Vienna has the same number of departures per potential unit compared to cities such as Munich or Hamburg. However, due to the high potential density, Vienna can supply a much better spatial accessibility by public transport. This means that Vienna has far more departures per sq. km STA, for example due to a higher number of stops.

For a transferability of the traffic situation from Vienna to other cities, the following conclusions were drawn:

- Urban and traffic planning must be a strictly integrated planning. New construction areas and locations of infrastructure facilities should be connected as directly as possible to a main axis of public transport. The potential density should increase with decreasing distance to the public transport station.
- The transport supply must be as attractive as possible. Thereby, a life without private cars can take place without any difficulties, i. e. to a large extent without restrictions on mobility and social participation.
- The effectiveness of measures usually depends on conditions from which a hierarchy of areas of activity can be derived. Price policy measures such as the implementation of the Viennese model require a transport supply that enables a higher use of public transport.

Irrespective of the economic effects, the effects on revenues must be considered for pricing policy measures (business view). In this context, it may be necessary to compensate for any revenue decreases by other sources of income. The city of Vienna has responded in an exemplary manner: by increasing parking fees while simultaneously increasing the use of these revenues for public transport as well as raising the employer's levy, significantly higher financial resources have been made available for public transport since 2012 than in previous years. A transfer to other cities is at least possible regarding parking fees. An employer's levy, however, requires legal adjustments.

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