CONSUMERS' SATISFACTION AND REGULATION OF LOCAL PUBLIC TRANSPORT: EVIDENCE FROM EUROPEAN CITIES

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Consumers' satisfaction and regulation of local public transport: evidence from European cities.

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ABSTRACT.

In the last three decades a wave of privatization and deregulation affected most European countries. This process involved many sectors, among which the provision of public transport. The research question addressed by this work is straightforward: is satisfaction correlated to the number of providers of local transport services? We use the results of a large survey conducted in 2009 in 33 European cities and analyse the probability of satisfaction with standard logit models. Results show that highest levels of satisfaction are correlated to the presence of one single provider, as opposed to an industry structure where more providers compete with one another.

Keywords: consumers' satisfaction, liberalisation, urban transit.

JEL: L50, O18, R42.

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1. Introduction.

Local public transport (LPT) includes all those passengers services provided to the public on a non-discriminatory basis according to pre-established tariffs, routes and timetables, and designed to meet users' mobility requirements on a small (urban) or medium (inter-urban) territorial scale (Zatti, 2011).

In order to ensure equal access to LPT, most public transport systems, both in Europe and in the US, have been heavily subsidised by governments and other public authorities. Moreover, public intervention can be justified on efficiency grounds in a market characterised by increasing returns to scale and scope economies (Farsi *et al.*, 2007).

Until the 1960s, most public transport systems were self-supporting. However, the subsequent investments in road networks and the high rates of motorization led to a reduction of the demand for public transport. This change implied the need for new organisational forms, in order to reduce the operating costs without affecting the quality of the service.

Over the past three decades many nations and urban areas began to introduce competition among providers. As a result, nowadays LPT systems operate under a broad variety of forms of governance (Nash, 2005).

Van de Velde (1999) provides a detailed classification of organisational forms. The two extremes are represented by the so called public initiative and market initiative models. In the latter case autonomous market entry is not constrained nor regulated, and the public body simply acts as a licensing authority. At the other extreme, in the public initiative regimes, public transport authorities operate as monopolistic firms. Between these two opposite cases, empirical evidence provides a number of intermediate situations. Sometimes (the so called *contracting* form of privatisation) the public authority keeps the control over network design and service offered and delegates to private firms only some specific parts of the service. Another solution is to *franchise* some services by selling to private operators the licence to operate under less specific guidelines compared to the contracting case (Small and Verhoef, 2007). Other experiences include regulated monopoly and different situations where the degree of privatization and deregulation varies according to the extent of the public intervention.

As mentioned above, public intervention in the LPT market has been noteworthy both in the US and in Europe. In the US, public authorities still operate as a monopolist the vast majority of LPT systems. In particular, as reported by Cox and Duthion (2001), the leading trend over the past 80 years has been pre-emption of state and local government authority by the federal government. LPT systems have been nationalized in all those cases where the public transport companies were no longer able to manage their activity, due to the decrease in the demand and to the rise of operational costs. During the

Reagan administration, the government tried to implement competitive tendering programs, but this policy has not been carried on by the following administrations.

In Europe, LPT forms of governance significantly differ across countries. The biggest step toward deregulation is represented by the British Transport Act, enacted in 1985 by the Thatcher government. It introduced deregulation of bus services in the UK, with the exclusion of the metropolitan area of London, due to the concerns about the effects of free entry on congestion and on the coordination between different modes of transport (Zatti, 2011). British local authorities were required, starting from 1986, to transfer their municipally-owned transport services to separate companies. Most of them have been privatised, with some exceptions in Scotland and Northern Ireland. Apart from UK (and Sweden, where LPT services are almost entirely provided by private operators), in the overwhelming majority of European countries LPT systems are still publicly owned and operated. This regime characterizes nations such as Italy, Belgium, Austria and Poland. Some countries introduced some degrees of liberalisation: in Germany and France, for instance, the legislation provides for competitive tendering procedures in order to assign, eventually to external private or mixed companies, the provision of public transport services.

The research question addressed by our work concerns the relationship between the organisation of urban transport and consumers' satisfaction.

From a theoretical point of view, the relative advantages of different reforms of privatization depend on the nature of the industry (Small and Verhoef, 2007). Ceriani and Florio (2008) analysed the effects of regulatory reforms in network industries, concluding that a shift from public to private ownership cannot be said to be welfare improving for sure, but its effects on consumers' surplus depend on a broad variety of issues and conditions. Concerning LPT, Winston (1998) modelled the case in which transport operators are forced to compete with each other, setting prices and service frequency with the purpose of profit maximisation. Their results show how the social surplus from eliminating transit deficits would substantially overcome travellers' losses from higher fares and reduced services.

From an empirical perspective, many studies focused on the public transport market (Frick, Taylor and Wachs, 2007), providing contrasting results.

A first group of works compare firms across cities. In most cases private firms appear to be more efficient than public operators. This conclusion is supported by Boitani, Nicolini and Scarpa (2010), who analysed a sample of 50 cities across nine EU counties, by regressing a measure of total factor productivity on firms' ownership. Roy and Yvrande-Billon (2007) applied a stochastic frontier methodology on a sample made up with 135 different French urban transport networks between 1995 and 2002. Again, public operators exhibit a higher level of technical inefficiency compared with private ones. Despite these findings, some studies focused on the US experience with public transport privatization (Iseki, 2004) are more cautious about the link between form of governance and efficiency. Gomez-Ibanez and Meyer (1997) claim, based on a cross-

country comparison, that privatization leads to lower operating costs only if a minimum amount of competition is introduced.

A second group of studies focuses on the effects, in a certain metropolitan area, of the switch from a public operator to a different (generally mixed or private) form of governance. Large evidence is available, usually linking private ownership to higher levels of efficiency. Karlaftis and McCarthy (1999) studied Indianapolis' mass transport system privatization between 1991 and 1997. Their main finding shows how this process approximately led to an annual 2.5 per cent decrease in mass transit operating costs. Similar results are reported by Downs (1988), in a study still focused on the US, and by Colson (1997), who analysed the deregulation of bus services in the UK. However, some case studies are more sceptical about the results achieved through public transport privatisation. Mees (2005), considered the case of Melbourne, claiming that privatisation has not served the public interest, as private bus services consume large subsidies to provide poor services, measured in terms of train punctuality and cancellations. Cox and Duthion (2001) present several case studies, from both US and Europe. They suggest how the fully deregulation (the regime adopted in the UK) misses to satisfy passengers' demand: the significant savings in operating costs come with a sharp increase of fares and a reduction of the service quality (*e.g.* bus frequency and routes are usually reduced). On the other hand, the public monopoly is too expensive: according to the two authors, the government intervention in the US led, between 1970 and 1999, to an increase in annual spending per passenger journey of about 141 per cent. Expenditures were increased 155 percent, whilst productivity has dropped 63 per cent. The best results have been reached for those cities which adopted competitive tendering schemes. This is the case of Las Vegas, San Diego and Denver, which experienced a strong reduction of unit costs and a significant increase in productivity, without affecting ridership.

Our contribution diverges from this literature in two aspects.

Firstly, all the works summarised above face the issue about the organisation of urban transport through the analysis of the effects of the ownership on costs and productivity. Much less attention has been devoted to the empirical verification of the connections between consumers' satisfaction and different organisational models of public transport services.

Secondly, the dichotomy public-private cannot be easily defined. As pointed out by Van de Velde (1999), real world examples are far from being "pure organisational forms": a large number of intermediate situations exists, based on the legal, regulatory and organisational frameworks which characterising any country-specific (or even city-specific) environment. For this reason, in our contribution urban transport providers are not classified according to their legal status (public/private), but to the number of companies (public, private and other hybrid forms) operating in the same urban context. The rationale behind this choice is that LPT has as some features of a natural monopoly because the time/route slots are unique and there is a need to coordinate time plans and stops. Moreover, transit operations are also subject to scale economies (Berechman and

Giuliano, 1985). Hence, it may be assumed that the number of providers has an effect on firms' profitability and, indirectly, on the quality of the service captured by consumers' satisfaction.

In order to verify this assumption we use the results of a survey conducted in 2009. Our data set is made up by 14,926 interviews collected in 33 European cities and focused on consumers' satisfaction with (among the other issues) public transport. In our model satisfaction depends on a set of individual characteristics and socio-economic features, according to previous literature (Fiorio and Florio, 2008). Trying to capture the effect of different market structures, we classified our sample of cities into two groups, based on the number of providers operating (one or many). The discussion is organized as follows. In the next paragraph we present more in details the data set. The third section is devoted to the discussion of the methodology, whilst in the last part we comment our results.

2. The data.

Eurobarometer surveys. Since 1973, the European Commission has been monitoring the evolution of public opinion in the Member States, thus helping the preparation of reports, and the evaluation of different policies. Eurobarometer surveys collect a large amount of information about individuals' actual attitudes, such as vote intention or media use, and their satisfaction with life in general and some specific issues, such as government policies or public services.

Flash Eurobarometer reports include *ad hoc* surveys, focused on specific target issues and conducted relatively quickly compared with standard studies. Flash Eurobarometer n.277 in 2009 is devoted to the quality of life in 72 European cities. In every city a sample of 500 respondents has been asked about their satisfaction with some services such as public transport, health-care services and sport facilities. Judgements can be expressed by choosing among four categories: very unsatisfied, rather unsatisfied, rather satisfied and very satisfied. Respondents have also been required to reveal their attitudes toward these services, for instance how often they use public transport or how much time they spend travelling.

Considering urban transport, both satisfaction and attitudes significantly vary across European countries and cities. Figure 1 shows the ratio between satisfied respondents (i.e. those who answered "very satisfied" or "rather satisfied") and unsatisfied ones (who chose the "rather unsatisfied" or "very unsatisfied" option). Evidence reported in figure 1 clearly displays the huge gap between the city characterised by the lowest levels of satisfaction (Palermo) and the metropolitan area defined by the highest ones (Rennes).

The same applies to respondents' attitudes: figure 2 reports the ratio between the number of interviewees who declared to use public transport every day and the number

of respondents who answered “less than once a month” or “never”. Again, Palermo occupies the lowest place.

Finally, Flash Eurobarometer survey provides us with some information about respondents’ characteristics such as age, gender, education, etc.

Urban transport systems. Unfortunately, there is not any source collecting and providing complete information about the governance and the structure of public transport providers across European countries. Hence, we built our database through various sources. Municipalities’ web sites provided information about the services and the number of providers. The Amadeus database, maintained by Bureau Van Dijk, furnished some details about the ownership and governance of these firms. Finally, through the companies’ web sites we obtained the data about ticket prices.

Our sample is composed by 33 cities in nine countries. We classified these cities in two groups, based on the number of public transport providers. The first group is composed by those cases (15 out of 33), in which one single firm supplies all the services. The ownership is usually entirely public (as summarised in table 1) but for 4 cities, where one or more private companies own minority equity stakes. The second group includes the 18 towns where the transport services are supplied by more than one operator. In nine cases all the providers are publicly owned. A typical example comes from the German city railways (*S-bahn*): they are fully integrated into the urban transport network even if they are not owned by the same firm which provides the other services (bus, trams and underground). Finally, the remaining nine cities are characterised by the presence of many operators, publicly and privately owned.

Macroeconomic indicators. We included in our model some macroeconomic indicators: per capita GDP expressed in PPP, unemployment rate and population density. All variables are defined at NUTS III level. As well as the population density, we built a dummy equal to one for cities with more than one million inhabitants. The source of these data is the Eurostat Regional Database.

3. The empirical model.

Since respondents have been asked to state their satisfaction based on a four points scale, answers are only ordinally comparable. In other words we do not know what the relative distance between satisfaction answers is, but we assume that all individuals share the same interpretation of each possible answer.

As we do not know the exact level of individual satisfaction, S_i^*, for each service, we assume that satisfaction is generated by a latent variable model:

$$S_i^* = \beta_0 + \mathbf{x}_i'\boldsymbol{\beta} + e_i \qquad (1)$$

where $i = 1,...,N$ for a sample of *N* individuals, $\mathbf{x}_i'\boldsymbol{\beta} = \beta_1 x_{i1} + ... + \beta_k x_{ik}$ includes a set of controls. As S_i^* is latent, for each individual *i*, one can only observe

$$S_i = 1[S_i^* > 0],$$

where $1[\bullet]$ is equal to one if the argument is true and equal to zero otherwise. By defining the probability $p_i \equiv \Pr(S_i = 1|\mathbf{x}_i)$, and assuming that e_i is distributed according to a logistic distribution, then the logistic regression of S on $\mathbf{x}$ estimates parameter values for the vector $\boldsymbol{\beta}$ via maximum likelihood method of the equation:

$$\text{logit}(p) = \log(p/(1-p)) = \beta_0 + \mathbf{x}'\boldsymbol{\beta}. \qquad (2)$$

The ratio $p/(1-p)$ measures the conditional probability that $S = 1$ relative to the conditional probability that $S = 0$ and is called the odds ratio and, for the logit model, the log-odds ratio is linear in the regressors. By using eq. (2) one can easily interpret coefficients as semi-elasticities, i.e. analyse the percentage change in the odds ratio given a marginal change of one of the $x_i \in \mathbf{x}$, holding constant the other variables. For instance, if the j-th coefficient is estimated equal to 1.5 it means that the probability of satisfaction (*S=1*) is 50 percent more likely than the probability of dissatisfaction (*S=0*), while if the coefficient is below 1, say 0.8, it means that the probability of satisfaction is 20% less likely than the probability of dissatisfaction.

Our estimates always include city fixed-effects and clusterisation of error terms at the city level to correct for likely within-city correlations of the error term.

As controls we use four sets of variables: (i) individual demographic characteristics (i.e. respondents' gender, occupation, education, etc.) accounting for individual observed heterogeneity; (ii) city-specific macroeconomic variables (i.e. per capita GDP in PPP, population density) as well as city fixed-effects accounting city-specific effects; (iii) characteristics of individual travels (i.e. frequency of use of means of transport and time to work variables); (iv) a variable recording whether transportation is felt as one of top three priorities for the city and an average of individual satisfaction on issues other than urban transport, the aim of which is to account, though imperfectly, for the idiosyncRartic fixed effect which might bias the final estimated; (v) a variable measuring the governance of the service, distinguishing between cases where we have one public providers vis-à-vis many - either public or private - providers or one single public provider vis-à-vis more than one public providers or the contemporaneous presence of public and private providers. In some specification we also introduced the average fare of public transportation in PPP and a congestion variable, created as the average share of respondents who use the car to go to work, mostly to assess whether satisfaction is reasonably negatively correlated with prices paid and congestion experienced.

4. Results.

Table 2 shows the estimated odds ratio of the logistic regression model (2).[4] All specifications show that females are around 20% less likely to be satisfied than males, consistently with related literature about consumers' satisfaction (Fiorio *et al.*, 2007), age is not a significant variable, whilst graduated respondents are around 17 percent less likely to report a positive opinion about urban transport. While no occupation variables is consistently significant across different specifications, single with kids households are around 20 percent less likely to be satisfied than single with no kids. A dummy variable equal to one for respondents born in the city where the interview was conducted and zero otherwise is introduced but it is not statistically significant.

Satisfaction consistently decreases, though very little, the longer is the time needed to reach the workplace and when the frequency of usage increases. In particular, daily users are 150 percent more likely to be satisfied than respondents who never use them. Time needed to reach the workplace and frequency of usage are highly significant variables, which also largely increase the pseudo R-squared, showing a much improved fit of the model to satisfaction data. This evidence is reasonable at the individual level, as unsatisfied respondents will probably evaluate other travel alternatives in order to reduce the use of public transport.

Those who included public transport among the three most important issues for their city are less likely to be satisfied with it, probably because they care about this service and they are more severe in expressing their opinion. The regressor "individual overall satisfaction" is a continuous variable equal to the average of the satisfaction reported for all issues but public transport. As we mentioned above, Flash Eurobarometer survey investigates consumers' contentment with a number of services.[1] In all cases, respondents are asked to rank their satisfaction on a scale from 1 (very unsatisfied) to 4 (very satisfied). The average of these judgements provides a measure of overall satisfaction, and the evidence reported in Table 2 shows, unsurprisingly, a positive correlation between the latter and satisfaction with public transport.

The higher the population density more likely is satisfaction, which can probably be explained by the fact that in most populated areas the transport network is better-framed. The higher is per capita GDP in PPP the lower is satisfaction, although the odds ratio is very close to one. Most likely this is because the use of public transport decreases with income.

The key group of variables for the current analysis concerns the number of the service providers, and a service franchised to a single firm is taken as reference.[5] Statistically significant results show higher levels of satisfaction are correlated to the presence of

[4] For space reasons, we highlight whether coefficients are statistically significant at standard significance level but we omit presenting estimated standard errors or p-values.

[5] It is a matter of fact in our sample that when the industry is monopolistic, the franchisee is publicly owned enterprise.

one single provider, as opposed to more than one provider (Table 2). In Table 3 we tested similar modes but opposing a franchised monopoly to more franchised providers, distinguishing between the case where they are all publicly owned to the case where some are publicly and other are privately owned. Again, we find that a single provider is correlated with higher satisfaction. This result is consistent with the findings provided by Fiorio and Florio (2008) about the effects of liberalisation in the electricity sector.

The result about fares in PPP is the expected one, since a one-euro increase of price reduces the probability of satisfaction with urban transport by about 30 percent. Interestingly, the inclusion of fares in the regression does not alter neither the statistical significance nor the sign of the governance of providers, only slightly changing the magnitude of the coefficient estimated suggesting an omitted variable bias if the price variable is excluded from the analysis.

5. Conclusions and policy implications

This paper has presented new evidence on the satisfaction of local public transport users in 33 European cities. Our research question was straightforward: is satisfaction correlated to the number of providers of local transport services?

We find that, a monopolistic organization of the service is correlated with higher satisfaction of users. In the interpretation of this finding, which, as far as we know, is entirely new in the literature, there are some important remarks to be considered:

(i) the Eurobarometer survey is not intended as direct test of social attitudes toward the different dimension of the service. The question (in the English version of the questionnaire) was: "*Generally speaking, please tell me if you are very satisfied, rather satisfied, rather unsatisfied or not at all satisfied with public transport*". Hence we are not testing whether users are happy with monopoly of local public transport, or public ownership of the service providers. Answers to such questions may be biased because of the political orientation, or the awareness of the respondents. Here we are just testing a generic satisfaction of users, and this procedure can be seen as more neutral than testing social attitudes. (ii) the statistical approach we use is well suited to this context, and can be easily replicated for other regions and cities, if data become available. (iii) the EU context offers some variability of the governance model of the service, and we take advantage of this feature. Ideally, we would like to have a larger number of cities to create the governance clusters, but this is left to future research, if Eurobarometer or other cross-country surveys will be available.

The core policy implication of the paper for planners and public administrators, is that one additional piece of evidence should be added to the long standing debate on the advantages and drawbacks of competition in local public transport. In some countries, particularly in Great Britain (but not in London, see Glaister 1985, 2003) privatization of local bus companies has been combined with an attempt to introduce competition "within the market". Elsewhere, either there has been "competition for the market" á la Demsetz (Crain and Ekelund, 1976) or continued public monopoly. In some cases licensing a plurality of actors, either private or public, has been seen by regulators or

city administrators as an advantage relative to monopoly, a way to introduce a degree of competition in the system.

While we are not directly testing the outcome of these reforms, we interpret our findings as suggesting that users seem to be more satisfied where the local public transport systems preserve an integrity of provision. If users' satisfaction reflects, at least to some extent, their experience, our findings can be added to the case for franchised monopoly of provision to one local public transport authority.

Figure 1. Urban transport: ratio between satisfied and unsatisfied respondents. (Source: Flash Eurobarometer n.277).

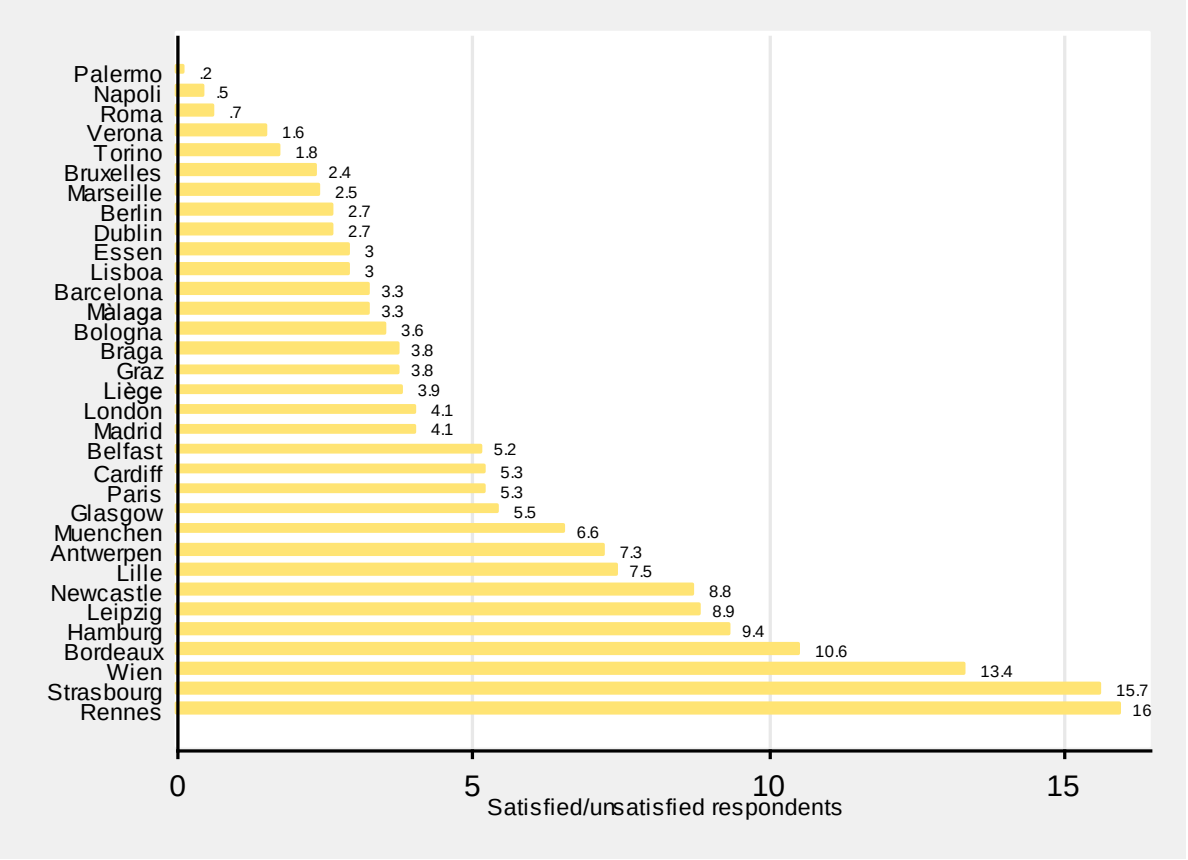

Figure 2. Ratio between daily travellers and respondents who declared to use urban transport less than once a month. (Source: Flash Eurobarometer n.277).

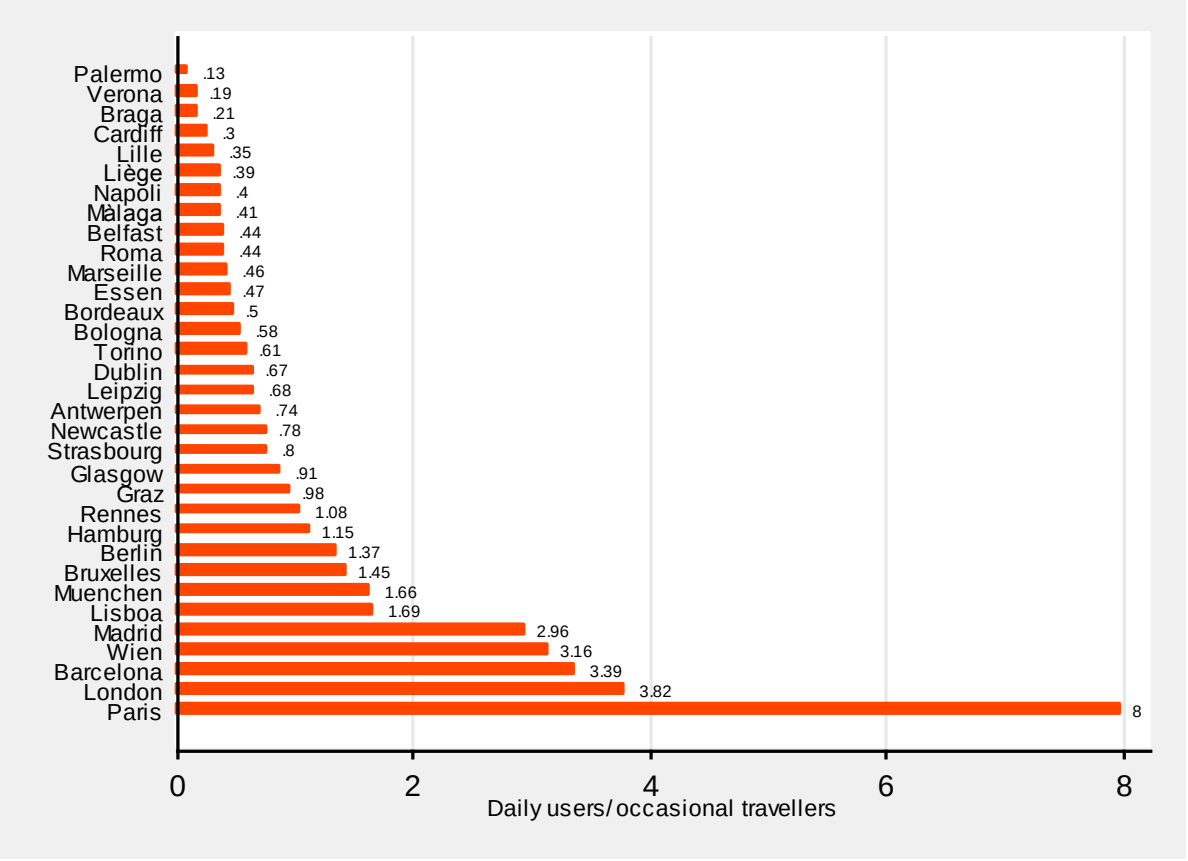

Table 1: Urban transport in some European cities, some descriptives.

Country	City	Single ticket (euro)	Governance
Belgium	Antwerpen	1.20	One provider: public monopoly
Belgium	Bruxelles	1.70	One provider: public monopoly
Belgium	Liège	1.40	One provider: public monopoly
Germany	Berlin	1.30	Many providers, publicly owned
Germany	Essen	1.30	One provider: public monopoly
Germany	Hamburg	1.30	Many providers, publicly owned
Germany	Leipzig	1.50	Many providers, publicly owned
Germany	Muenchen	1.20	Many providers, publicly owned
Spain	Barcelona	1.40	Many providers, publicly and privately owned
Spain	Madrid	1.00	Many providers, publicly and privately owned
Spain	Màlaga	1.20	One provider: public monopoly
France	Bordeaux	1.40	One provider: mixed ownership
France	Lille	1.30	One provider: mixed ownership
France	Marseille	1.26	One provider: public monopoly
France	Paris	1.70	Many providers, publicly and privately owned
France	Rennes	1.20	One provider: mixed ownership
France	Strasbourg	1.40	One provider: mixed ownership
Ireland	Dublin	1.50	Many providers, publicly and privately owned
Italy	Bologna	1.00	One provider: public monopoly
Italy	Napoli	1.10	Many providers, publicly owned
Italy	Palermo	1.30	Many providers, publicly owned
Italy	Roma	1.00	Many providers, publicly owned
Italy	Torino	1.00	One provider: public monopoly
Italy	Verona	1.10	One provider: public monopoly
Portugal	Braga	1.35	One provider: public monopoly
Portugal	Lisboa	0.85	Many providers, publicly owned
United Kingdom	Belfast	1.67	One provider: public monopoly
United Kingdom	Cardiff	1.79	Many providers, publicly and privately owned
United Kingdom	Glasgow	1.43	Many providers, publicly and privately owned
United Kingdom	London	2.15	Many providers, publicly and privately owned
United Kingdom	Newcastle	1.67	Many providers, publicly and privately owned
Austria	Wien	1.80	Many providers, publicly and privately owned
Austria	Graz	1.90	Many providers, publicly owned

Table 2: Odds ratio of satisfaction with urban transport. One public provider vis-à-vis many providers.

	Dep. var.: Very or fairly satisfied on the use of the urban transit					
Many providers	0.760***	0.893***	0.738***	0.576***	0.415***	0.688***
Transit is one of top 3 priorities			0.420***	0.420***	0.420***	0.420***
Individual overall satisfaction			3.289***	3.289***	3.289***	3.289***
Per capita GDP (in PPP)	0.955***	0.958***	0.979***	0.958***	0.941***	0.967***
Population density	1.106***	1.080**	1.021	1.299***	1.777***	1.097***
Fare of mass transit (in PPP)				0.735***		0.623***
Average congestion					3.653***	0.497***
Female		0.840***	0.777***	0.777***	0.777***	0.777***
Age		1.002	0.999	0.999	0.999	0.999
Secondary education		0.929	0.907	0.907	0.907	0.907
Tertiary education		0.830**	0.828**	0.828**	0.828**	0.828**
Employee		0.919	0.962	0.962	0.962	0.962
Manual worker		0.839	0.820*	0.820*	0.820*	0.820*
Student		1.409***	1.149	1.149	1.149	1.149
Unemployed		1.250*	1.003	1.003	1.003	1.003
Not working		1.337***	1.095	1.095	1.095	1.095
Couple		0.981	1.000	1.000	1.000	1.000
Single with kids		0.743***	0.815**	0.815**	0.815**	0.815**
Couple with kids		0.940	0.984	0.984	0.984	0.984
Other family types		0.949	0.916	0.916	0.916	0.916
Native		0.933	0.977	0.977	0.977	0.977
Time to work			0.993***	0.993***	0.993***	0.993***
less than 1 month			1.595***	1.595***	1.595***	1.595***
at least 1 a month			2.034***	2.034***	2.034***	2.034***
at least 1 a week			2.731***	2.731***	2.731***	2.731***
everyday			2.585***	2.585***	2.585***	2.585***
City fixed-effect	yes	yes	yes	yes	yes	yes
Constant	yes	yes	yes	yes	yes	yes
Log-likelihood	-6940	-6693	-5902	-5902	-5902	-5902
Pseudo R-squared	0.138	0.146	0.218	0.218	0.218	0.218
Observations	14,926	14,537	13,973	13,973	13,973	13,973

Notes: our calculations on Flash Eurobarometer data. Omitted variables are: Male, Primary education, Self-employed, Single no kids, Not native, Time to work: does not work, Frequency of use: never, One provider, Transportation is not among first 3 priorities, the city is not congested.

Robust pvalues in parentheses. Errors corrected for clusters at the city level.

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Odds ratio of satisfaction with urban transport. One public provider vis-à-vis more than one public or more than one public and private providers.

	Dep. var.: Very or fairly satisfied on the use of the urban transit					
Many providers, all publicly owned	0.170***	0.209***	0.493***	0.127***	0.038***	0.243***
Many providers, public and private	0.760***	0.893***	0.738***	0.576***	0.415***	0.688***
Transit is one of top 3 priorities			0.420***	0.420***	0.420***	0.420***
Individual overall satisfaction			3.289***	3.289***	3.289***	3.289***
Per capita GDP (in PPP)	0.955***	0.958***	0.979***	0.958***	0.941***	0.967***
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Secondary education		0.929	0.907	0.907	0.907	0.907
Tertiary education		0.830**	0.828**	0.828**	0.828**	0.828**
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Manual worker		0.839	0.820*	0.820*	0.820*	0.820*
Student		1.409***	1.149	1.149	1.149	1.149
Unemployed		1.250*	1.003	1.003	1.003	1.003
Not working		1.337***	1.095	1.095	1.095	1.095
Couple		0.981	1.000	1.000	1.000	1.000
Single with kids		0.743***	0.815**	0.815**	0.815**	0.815**
Couple with kids		0.940	0.984	0.984	0.984	0.984
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at least 1 a month			2.034***	2.034***	2.034***	2.034***
at least 1 a week			2.731***	2.731***	2.731***	2.731***
everyday			2.585***	2.585***	2.585***	2.585***
City fixed-effect	yes	yes	yes	yes	yes	yes
Constant	yes	yes	yes	yes	yes	yes
Log-likelihood	-6940	-6693	-5902	-5902	-5902	-5902
Pseudo R-squared	0.138	0.146	0.218	0.218	0.218	0.218
Observations	14,926	14,537	13,973	13,973	13,973	13,973

Notes: our calculations on Flash Eurobarometer data. Omitted variables are: Male, Primary education, Self-employed, Single no kids, Not native, Time to work: does not work, Frequency of use: never, One provider, Transportation is not among first 3 priorities, the city is not congested.

Robust pvalues in parentheses. Errors corrected for clusters at the city level.

*** p<0.01, ** p<0.05, * p<0.1

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[1] Respondents have been asked to report their satisfaction with public transport, health care services, sports facilities, cultural facilities, the beauty of streets and buildings, public spaces, green spaces, outdoor recreation.