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Unlocking Shared Scooter Potential

A comparative analysis of regulatory models

Authors

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Executive summary

Shared e-scooter services first launched in the mid-2010s, and since then, cities have implemented various regulatory models to enable these services and ensure they are beneficial for citizens. However, to date, no empirical research has been conducted to assess the efficacy and impacts of each regulatory model. To fill this knowledge gap, this study provides an overview of the existing regulatory models that have been implemented across Europe and assesses their respective impacts on cities as well as their residents.

Overview of existing e-scooter regulatory models in European cities

European cities have implemented a wide range of regulatory models that can be categorized into three groups:

- **Light Regulation,** which consists of open markets and markets with standard regulations.
- **Medium Regulation,** which consists of authorization regimes.
- **High Regulation,** which consists of tenders.

There has recently been a trend among European cities toward stricter e-scooter regulations due to a perception among policymakers that the more stringent regulatory models enable better monitoring and management of shared e-scooter services in their cities, thereby improving the quality of the services for their citizens. However, the research for this report has shown that Light Regulation models (especially MoUs) and Medium Regulation models can both provide cities with the degree of control needed to ensure quality and responsiveness to the needs of their citizens.

Local impacts of different regulatory models

These three categories of regulations have a wide range of impacts on cities as well as their inhabitants.

- More stringent regulation comes at a higher cost for city administrations, with tenders requiring cities to spend up to 160 days per year on preparation and follow-up monitoring of the service.
- More regulation results in higher prices for the usage of micromobility services and fewer monthly trips, meaning lower adoption of the service.
- Monopolies result in significantly smaller fleet sizes per 1000 inhabitants and higher costs for users
- Cities with three to four operators have the most favorable range of monthly trips per 1000 inhabitants, meaning that adoption of the service is higher.
- Bringing additional e-scooters to market results in more trips. Given the strong interconnection with public transport, hard caps on micromobility fleet sizes hinder public transport usage.

Recommendations for cities

Based on the key findings above, there are five recommendations for city administrations in order to release micromobility benefits:

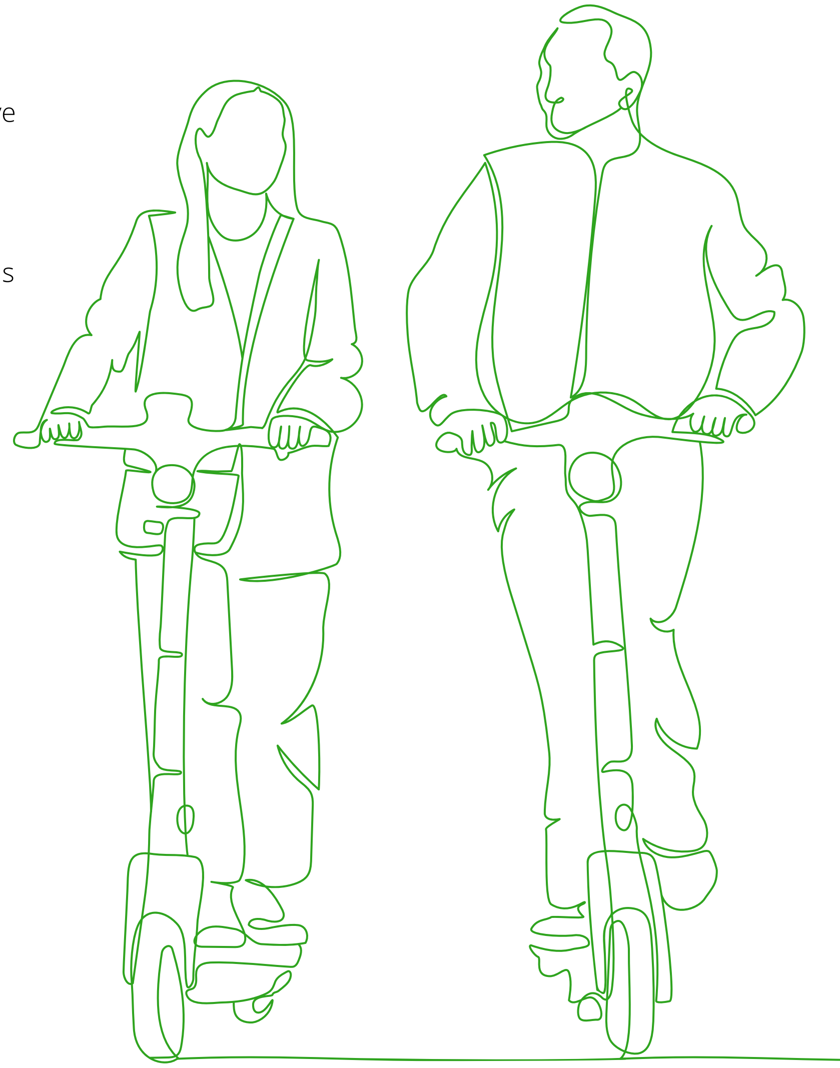
01. Before implementing any regulatory scheme, city officials should thoroughly analyze the different models and prioritize those that enhance accessibility and shift people from cars toward more sustainable transport modes.
02. For cities implementing shared e-scooter regulations for the first time, regulators should prioritize Light or Medium regulations, due to their lower costs and greater flexibility.
03. Cities officials should be conscious of the negative impact of hard fleet caps on the adoption of shared e-scooters and their sustainability benefits.
04. Rather than hard fleet caps, dynamic fleet caps could be implemented instead, based on performance metrics such as average daily trips per vehicle, parking compliance, and others.
05. A minimum of four shared e-scooter operators is recommended to ensure sufficient competition, innovation and affordable services, as well as to reduce the risk of an eventual monopoly in case of operators ceasing operations or consolidation within the industry.

Introduction

Since the launch of the first shared e-scooter services in the mid-2010s, there have been consistent questions about how these vehicles should be regulated in order to maximize their benefits for cities and their local populations. In response to this challenge, cities around the world have implemented various models, ranging from unregulated open markets to tenders, or even outright bans more recently[1].

However, despite rapid growth of these shared mobility services, no empirical research has been conducted to specifically assess the advantages and disadvantages of the different regulatory models that have been implemented thus far. As a result, policymakers have had incomplete information at their disposal when deciding which regulatory model should be used when implementing shared e-scooter services in their cities.

In order to fill this gap, this report provides an exhaustive overview of the various regulatory models that exist in Europe today, along with their respective impacts on cities and their local populations, in terms of total trips, usage per vehicle, and costs for cities and users. Based on these impacts, the report provides recommendations for local policymakers on how best to regulate shared e-scooter services in their cities.



[1] Paris Ban in 2022

Methodology

Depending on availability, this research is based on qualitative or quantitative data from 155 European cities.

Topic of analysis	Source of data	Explanation
State of the regulatory landscape	**Interviews with cities Literature review**	Since no aggregated detailed quantitative information is available for all operators about safety statistics i.e. the number and type of accidents occurring while using micromobility, and about parking compliance, the research undertook 4 interviews with cities having implemented different regulatory models (from open market to tenders). City officials were asked to share relevant insights related to those topics. This information was complemented by a literature study.
Impact for cities	**Survey Literature review**	Another important subject of this research is the cost impact of the implementation of a certain regulatory model on cities and users. Since it is complex to come to clear quantitative findings for the former, the research team used a survey to estimate the resources cities spend on setting up the regulatory scheme but also its maintenance.
Impact for citizens	**Aggregated data**	Data was gathered for the usage of e-scooters i.e. number of trips, daily trips per vehicle and user costs. The research relied on data shared by industry specific data providers which guaranteed the highest possible data accuracy.[2]

The following measures were taken to compare different cities with different regulatory models on the same grounds:

- To exclude the influence of weather conditions, only June-August summer period data from 2021 to 2023 were used.
- Pricing information in different cities and countries was corrected for the countries' GDP.

Several correlations have been analyzed and statistical tests have been performed to evaluate whether the findings were statistically relevant. Those statistical analyses were mainly based on T-tests[3] and Mann-Withney U tests[4].

[2] Fluctuo

[3] A t-test is a type of statistical test used to see if there's a significant difference between the average values (means) of two groups, assuming the data in these groups generally follows a bell-shaped curve (normal distribution).

[4] The Mann-Whitney U test is a non-parametric statistical method used to determine if there are significant differences between two independent groups on an ordinal or continuous outcome that is not normally distributed.

Overview of existing e-scooter regulatory models in European cities

Based on a review of 155 cities across Europe, different regulatory models for e-scooters have been identified, which have been grouped into the following three categories:

- **Light Regulation,** which consists of open markets and markets with standard regulations.
- **Medium Regulation,** which consists of authorization regimes.
- **High Regulation,** which consists of tenders.

As of now, the Light Regulation and Medium Regulation models combined are most common across Europe, accounting for almost 70% of the cities included in the study.

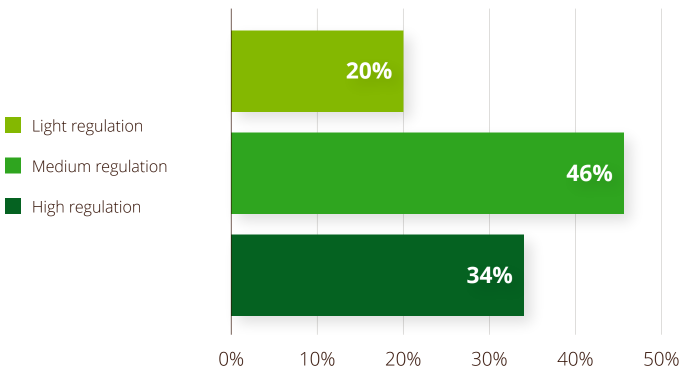


Figure 1: Distribution of current regulatory models in 155 European cities

Light Regulation

The first form of a Light Regulation is open markets, in which e-scooter services are not subject to regulatory restrictions. Unlimited numbers of operators are allowed to enter the market and offer services freely, and vehicle fleet sizes are unrestricted.

The second form of Light Regulation is standard regulation, in which cities implement basic rules for shared e-scooter operations, typically to address safety concerns and minimize negative externalities, for example, by developing rules for vehicle parking in public spaces. In this model, the number of operators able to enter the market remains unrestricted, and no formal selection process is adopted.

This standard regulation model can take two different forms:

01. A fee-based system, in which operators are required to pay the city as compensation for the regulatory costs involved.
02. A system based on the signing of a Memorandum of Understanding (MoU) between the city and each operator, outlining each operator's responsibilities and obligations. In this system, fees are not always required but can be agreed upon. MoU are generally not legally binding.

Medium Regulation

The primary form of Medium Regulation is authorization regimes, in which e-scooter operators must obtain a permit to operate from the city or local authority. These permits are legally binding and formalize the link between adherence to specific regulatory requirements and the continued right to operate, and they generally specify the circumstances in which the permit can be restricted or withdrawn.

Under an authorization regime, operators can be required to meet specific operational requirements, for example, the need to retrieve and redistribute poorly parked vehicles within a defined time period. In addition, operators may be required to pay fees to the city.

High Regulation

The primary form of High Regulation is tenders, in which cities invite e-scooter operators to submit competitive proposals. These proposals generally include various details on each operator's planned offering such as fleet size, service quality, pricing structure, fees structure, sustainability measures, and operational plans. Cities will typically set eligibility criteria (minimum acceptable standards) along with additional criteria to be judged by the city, based on each operator's commitments to implement measures that go beyond minimum requirements, which can include city fees.

Overview of regulatory models

Category	Band	Regulatory model	City fees	Number of operators	Licenses	Selection process
Light Regulation	Open markets	Open markets/no regulations	No	Unlimited	No	No
	Standard regulations	Basic regulations with fees	Yes	Unlimited	No	No
		Memorandum of Understanding (MoU)	Can be agreed	Unlimited	Yes	No
Medium Regulation	Authorization	Authorization regimes with specific requirements	No	Limited	Yes	No
		Authorization regimes with fees	Yes	Unlimited	Yes	No
High Regulation	Tender	Tender without fees	No	Limited	Yes	Competitive tendering[5]
		Tender with fees	Yes	Limited	Yes	Competitive tendering

[5] Comparative assessment of tenders based on certain selection criteria and provision for judgements to be made according to bid commitments to deliver higher quality outcomes (than the specified minima) against these criteria.

Why cities regulate

Since 2021, there has been a growing trend among European cities to shift from open markets for shared e-scooters toward stricter regulation. Among 37 major cities that were reviewed, 22 of them implemented a more stringent regulatory model, nine made no change, and zero moved to a less stringent system.

Based on direct interviews with city officials, survey results, as well as a review of the available literature, the key driver for this trend has been a sentiment among policymakers that the more stringent regulatory models enable better monitoring and management of shared e-scooter services in their cities, thereby improving the quality of the services for their citizens.

However, despite this perception, Light Regulation models (especially MoUs) and Medium Regulation models can both provide cities with the degree of control needed to ensure quality and responsiveness to the needs of their citizens. For example, key tender criteria under High Regulation models generally include topics such as proper parking, safety of users and third parties, environmental sustainability, and quality management of the service, but all of these issues can be equally addressed through Light Regulation or Medium Regulation.

Below is an overview of the most commonly used tools in each regulatory model to address the two main topics of concern expressed by cities: parking and safety.

	Control measures	
Regulatory model	**Parking**	**Safety**
Light regulation	• Mandatory parking areas • No parking zones • Technological requirements • Regular data sharing • Possible fleet caps	• Speed limits • Slow-speed and no-riding zones • Hardware requirements
Medium regulation	• Mandatory parking areas • No parking zones • Technological requirements • Regular data sharing • Compliance control • Possible fleet caps	• Speed limits • Slow-speed and no-riding zones • Hardware requirements • Training and communication
High regulation	• Mandatory parking areas • No parking zones • Technological requirements • Regular data sharing • Compliance control • Fleet caps	• Speed limits • Slow-speed and no-riding zones • Hardware requirements • Training and communication

Below are case studies of cities for each regulatory model and the control tools implemented to ensure high quality service from micromobility services.

Vilnius, Lithuania
Light Regulation | Basic Regulations

Despite being an open market, the city of Vilnius, in close collaboration with current operators, implemented basic regulations for parking management in 2023, introducing mandatory parking zones in the central area. Such basic measures have proven to be particularly efficient to improve parking quality in the city.

Moreover, operators have voluntarily implemented basic safety measures such as:

- Joint anti-drunk riding raids with the police,
- Lower top speed near schools and kindergartens, and
- Joint events with local authorities to promote responsible riding and awareness.

Lisbon, Portugal
Light Regulation | MoU

In January 2023, the city of Lisbon instituted an MoU that defines clear parking and safety requirements through operational and technical requirements:

- Operators must define mandatory parking spots and ensure a minimum intervention time to correct bad parking.
- Operators must deploy solutions to make sure users park properly and are aware of local rules. Solutions to penalize users are also mandatory.

City of Düsseldorf, Germany
Medium Regulation | Authorization regime

Shared scooters companies in Düsseldorf operate under a "Special Use Permit (SUP) Regime", a common regime of German city authorities to regulate the use of public space. Operators must comply with requirements such as:

- Fleet caps for each operator according to the number of scooters applied for in the Special Use Permit
- Special Use Permit fees per scooter (50 euros per scooter per year)
- Deployment of mandatory parking spots in specific areas of the city
- Regulation of how to park safely such as definition of no-parking zones)
- Regular data sharing on key usage and parking metrics

Milan, Italy
High Regulation | Tender

In 2023, Milan introduced a competitive tender after going through an Authorisation process in the past. Milan is limiting the service to three scooter operators (2000 each) and eight operators for e-bikes (2000 each). Main changes from the authorisation process:

- Addition baseline requirements around parking and safety that all the operators must meet
- Structuring the scoring criteria by evaluating the strength of the operators in topics that are important for the city (in addition to baseline criteria) such as environmental certifications, helping visually impaired people or people with disabilities, safety-related vehicle features, or proving integration with mobility-as-a-service (MaaS) platforms
- Non-intrusive pricing criteria around multi-ride passes, and
- Clear service-level agreement with the city

KEY FINDINGS

- Micromobility regulatory landscape remain diverse, authorization regimes and permit based regimes being the predominant models
- Cities tend to move from less to more stringent regulatory band as a way to monitor and better manage micromobility services
- However, Light, Medium and High regulated models offer similar control capacity to cities

Local impacts of different regulatory models

This section presents the impacts of the different regulatory models from the perspective of cities and users. As such, it takes into account costs of regulation for local administrations as well as cost for users and impact on usage metrics.

Cost for cities

Analysis of costs was conducted through survey and interviews; though significant insight was possible, cities acknowledged that precisely defining the cost for the implementation and maintenance of a regulatory model is complex and depends on many factors, including:

- Implementing a regulatory model for micromobility for the first time will come at a relatively higher cost.
- Marginal costs for additional regulation tend to be lower.
- Micromobility departments in cities devote time to several activities. Time allocation is not always communicated precisely.

The perception of increased control comes at a significant cost for city administrations, as the resources required to prepare and manage a shared e-scooter service increase in direct correlation with the stringency of the local regulatory regime.

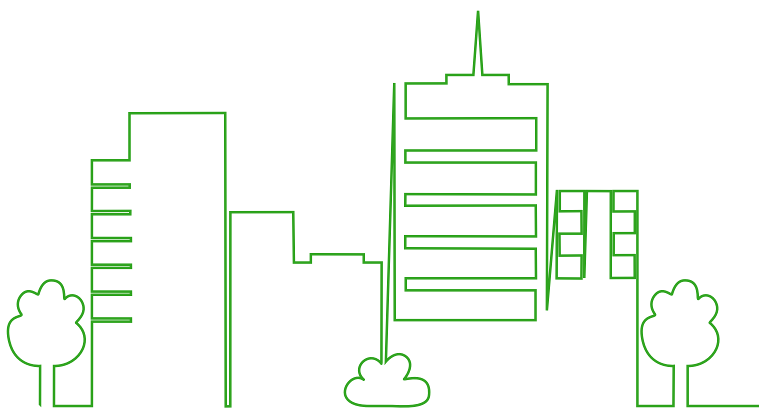
For example, under a Light Regulation model, cities incur minimal preparation cost when establishing a shared e-scooter service. On the other hand, the preparation for an e-scooter tender under a High Regulation model can take up to 40 days, plus additional time for the execution of legal reviews and the resolution of potential appeals of tender results.

Similarly, once an e-scooter service has been established in a Light Regulation market, there is a relatively lighter burden on cities to address complaints from the local population, as compared to High Regulation markets. Under a High Regulation framework, cities face a much greater burden of up to 120 days per year spent on verifying all operators' compliance with all terms of the tender contract. Furthermore, due to the competitive selection process, operators can be incentivized to make overly ambitious or outright unachievable commitments in their applications, generating a further burden on cities to follow up and monitor whether operators are fulfilling all of their stated commitments that go beyond the minimum legal requirements. Combined, a city should expect to spend up to 160 days per year for tender preparation and follow-up monitoring of the service[6].

The city of Oslo is a clear example of the significant resource that High Regulation models can represent for cities. In 2021, the city stated that the selection process of operators cost over 500,000€ (for the preparation, selection, follow-up and legal management of the service, all combined)[7].

In addition, some cities have to allocate resources to manage potential appeals from non-selected operators, which ultimately can increase the costs of the overall process. Cities that have gone through an appeal process include Turin, Palermo, Malaga, Madrid, Oslo, and Bremen, among others.

While these costs apply specifically to the High Regulation model, as a general rule, cities should expect that increasing the stringency of their regulatory model (from Low Regulation toward Medium Regulation and High Regulation) will require an increasing amount of resources for preparation and management of shared e-scooter services.



[6] This estimation doesn't take into account allocated resources preceding actual preparation of the tender, which are mainly aimed at preparing political decisions to launch a tender.

[7] Oppsummering av beregninger brukt i fastsettelse av gebyr for utleie av små elektriske kjøretøy i Oslo kommune, Bymiljøetaten, 14. juli 2021

Cost for users

To assess the cost for users of an average micromobility trip, it is first necessary to define what this means. The prices micromobility operators charge to their users generally consist of two parts: an unlock fee and a price per minute. In this specific calculation the average trip duration is defined as 10 minutes, which is a relevant average based on all the trips registered in the shared dataset. The calculation is done for 131 cities. For cities with more than one operator, the average price per city, all operators' prices combined, was calculated. As stated before, price calculations were corrected for GDP to equally compare cities in different geographies.

Figure 2 shows the results for the three different regulatory models as a boxplot, since this shows the spread of the results instead of one average or median value. A clear difference exists between Light and Medium Regulation on the one hand and High Regulation on the other. To evaluate whether this is truly the case, statistical tests between the different data samples have been run.

- A statistical 'Mann–Whitney U test' with the alternative hypothesis: the average trip cost is lower for light regulation than for medium regulation gave a non-significant difference with the following p-value: p = 0.65. This indicates that there is no significant difference between user cost for light and medium regulation.
- Statistical 'Mann-Whitney U tests assuming lower prices for cities with light and medium regulation compared to cities with high regulation resulted in the respective following significant results: p = 0.004 and p = 0.0001.

The research concludes that the **High Regulation model will lead to higher prices for e-scooter users**. As can be seen in Figure 2, the medium cost per trip is significantly higher for high regulation with ca. € 3.10 compared to medium costs per trip for light and medium regulation with € 2.6 and € 2.7.

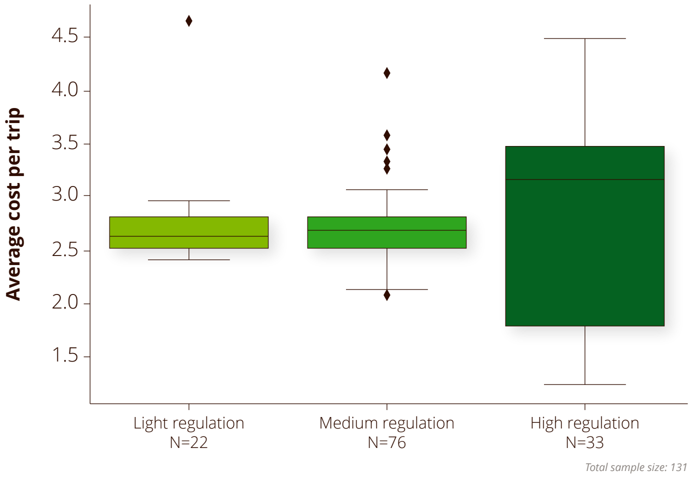


Figure 2: Average cost per trip per regulatory model (adjusted by GDP EU27 = 100)

A similar analysis can be done to assess the impact of the number of operators on the cost for users. The assumptions are the same as in the previous analysis, but in this case the cities are grouped by the number of operators.

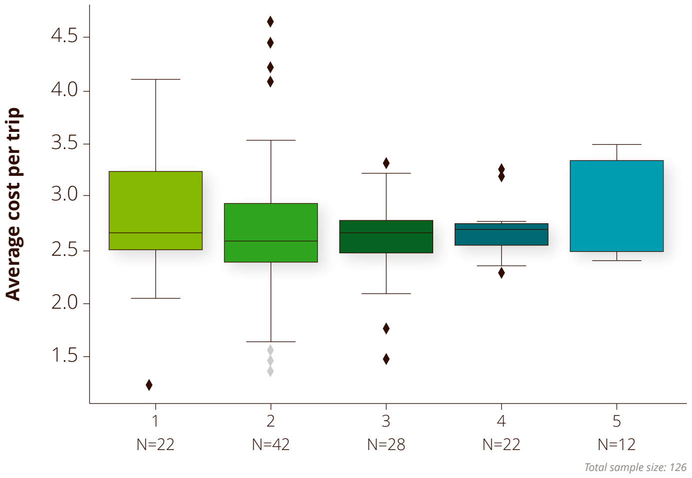


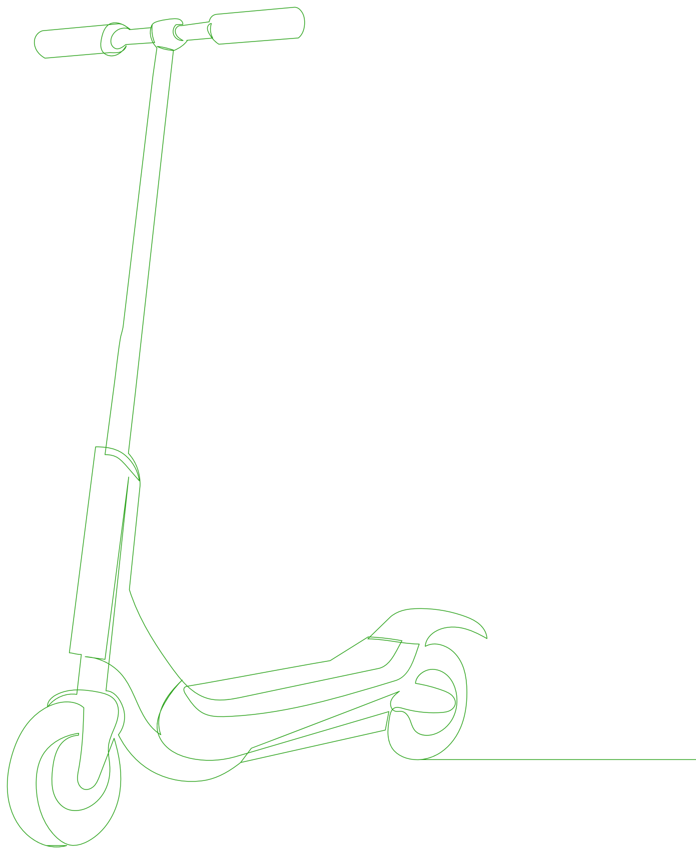
Figure 3: Average cost per trip per number of operators (adjusted by GDP EU27 = 100)

Figure 3 gives an overview of the average user cost per trip per number of operators. On first sight drawing a clear cut conclusion from the graph is not feasible. The main hypothesis would therefore be that no difference exists in user cost between cities with a different number of operators.

- The result of a statistical t-test assuming equal average user cost per trip between 2 and 3 operators and between 3 and 4 operators gave a non-significant difference; the p-values respectively are p = 0.53; p = 0.34.

Another hypothesis that could be tested is whether monopolies lead to higher user prices than another number of operators. To test this hypothesis multiple 'Mann-Whitney U' tests have been carried out.

- The tests carried out had the alternative hypothesis that the average trip cost is greater for monopolies compared to cities with two, three or four operators. This gave non-significant differences in all cases with respectively following p-values; p-value = 0.23; 0.18 and p-value = 0.12.



However, when testing the same hypothesis per regulatory model, results vary significantly. As shown in Figure 4, **monopolies result in higher cost for users in high and medium regulation frameworks.**[8]

For high regulation and light regulation the sample sizes are relatively small and narrow (see table below). However for high regulation the division of number of operators over the sample is slightly wider than for light regulation. When comparing the user cost between 1 and 2 and 1 and 3 operators for the assumption that the user cost is higher for monopolies, the respective p-values are 0.19 and 0.14. This indicates that the **user cost might be higher in monopolies under high regulation.**

	Sample size		
Number of operators	**Light regulation**	**Medium regulation**	**High regulation**
1	6	11	5
2	11	14	17
3	1	22	5
4	3	18	1
5	0	10	2

As can be seen from the table for medium regulation the sample is greater. This means that the outcome of the statistical analysis will be more reliable. When carrying out the same analysis as for high regulation the respective p-values for the difference in user cost between 1 and 2 operators and 1 and 3 operators are 0.35 and 0.10. The last value indicates that there might be a difference in user cost. Nevertheless in all regulation types no significant difference exists in average price per trip when comparing the number of operators.

Given the previous analysis, taking into account the outcome of the statistical analysis, it could be concluded that the **ideal number of operators is 3 or 4,** also given the risk of consolidation and the related reduced number of operators.

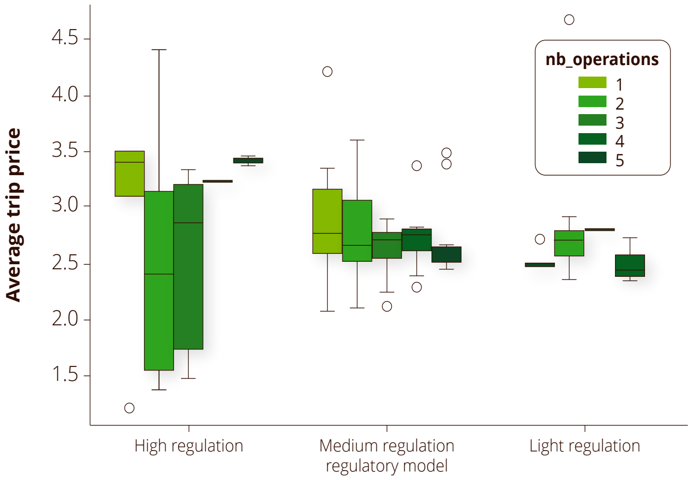


Figure 4: Variation in average trip prices per regulatory framework and number of operators

It should be noted that this analysis didn't take into account passess and discounts strategies, which are frequently offered by shared scooters companies to users in cities with multiple operators where competition is higher. As such, it can be assumed that such discount strategies implemented by operators can lead to lower prices and more affordable service for users in markets with higher competition. Further analysis on discount tactics should be done to confirm such assumptions.

[8] The analysis was based on 126 cities. Therefore sample sizes of the subcategories per regulatory model are smaller which impacts the statistical significance of the outcome. Further analysis with higher samples should be undertaken to confirm the statistical significance of the results.

Impact on usage levels

To analyze the impact of the three different regulatory models on the usage of e-scooters, the research mainly focuses on two key performance indicators: number of vehicles per 1.000 inhabitants and monthly trips per 1.000 inhabitants.

Number of vehicles per 1.000 inhabitants

Figure 5 below gives an overview of the number of trips per 1.000 inhabitants on a monthly basis for the different regulatory models.

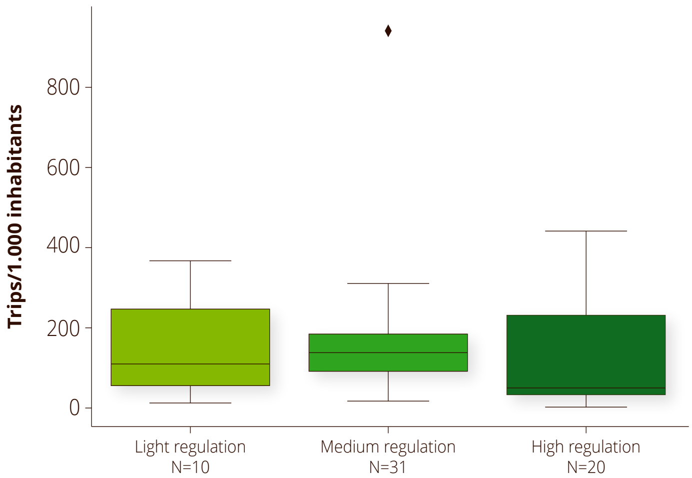


Figure 5: Trips/1.000 inhabitants per regulatory model

Again, there was opted for a visualization using boxplots since this gives a good overview of the data spread. Focusing on the high regulation part the median value seems to be on the lower end of the spectrum. Which could lead to the conclusion that high regulation might result in lower e-scooter usage. To test this hypothesis, again a few statistical tests have been used. The results are as follows:

- Result of statistical 'Mann–Whitney U test' with the alternative hypothesis being that the number of trips is lower for light regulation than for high regulation gave a non-significant difference; p-value = 0.16
- Result of statistical 'Mann–Whitney U test' with the alternative hypothesis being that the number of trips is lower for medium regulation than for high regulation gave a significant difference; p-value = 0.03

In addition, it seems that there does not exist a clear difference between the number of monthly trips per 1.000 inhabitants in cities with light regulation and medium regulation.

- Result of statistical t-test assuming equal number of trips between medium and light regulation gave no significant difference; p-value = 0.80

Therefore, the research concludes that the **number of trips for cities with high regulation is lower, which means lower adoption of the service.**

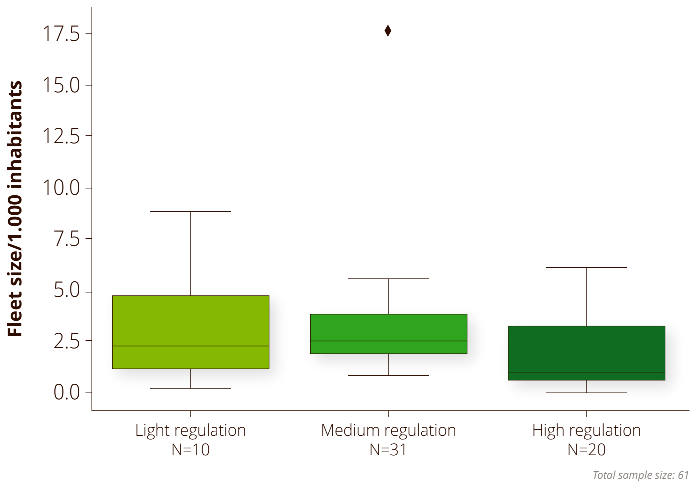


Figure 6: Number of trips per 1.000 inhabitants per regulatory model

Furthermore, we examined the fleet size/1.000 inhabitants by number of operators in Figure 7. The results of the statistical t-test, which assumed equal fleet sizes for two, three, and four operators, showed that comparing fleet sizes between two and three operators, as well as three and four operators, yielded non-significant p-values of 0.32 and 0.25 respectively. In contrast, the results of the Mann–Whitney U test, which tested the alternative hypothesis that the fleet size is smaller for cities with one operator compared to cities with two and three operators, showed significant differences with p-values of 0.03 and 0.04, respectively.

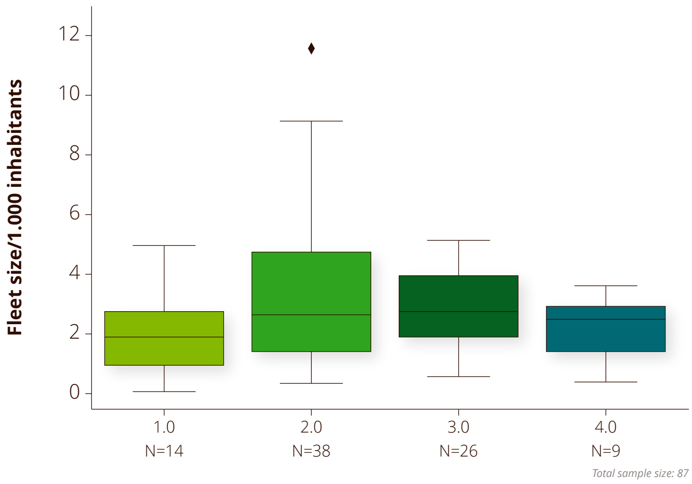


Figure 7: Fleet size/1.000 inhabitants by number of operators

It can be concluded that **monopolies result in significantly smaller fleet sizes.** In contract, no differences seem to exist between two, three and four operators. Overall, the medium fleet size is between 2.2 to 2.7 vehicles per 1.000 inhabitants.

Monthly trips per 1.000 inhabitants

In conducting a statistical t-test with the assumption of equal monthly trips across two, three, and four operators, the comparisons between two and three operators, as well as three and four operators, yielded non-significant p-values of 0.92 and 0.20, respectively (see Figure 8). Furthermore, when implementing the Mann–Whitney U test to evaluate the alternative hypothesis that cities with a single operator have fewer monthly trips compared to those with two and three operators, the results indicated non-significant differences with p-values of 0.11 and 0.07, respectively.

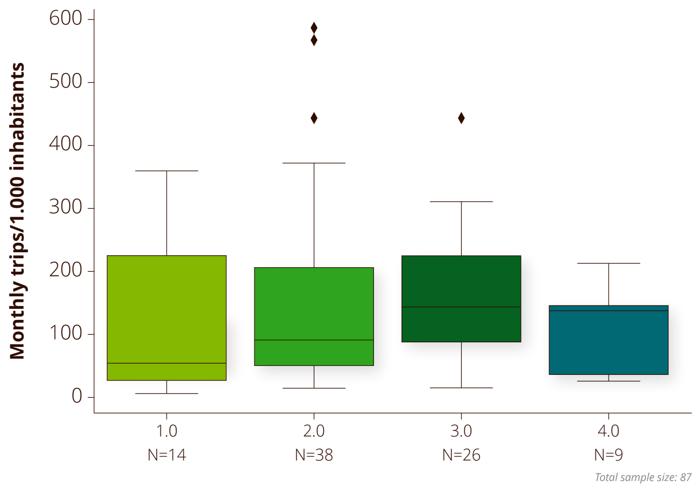


Figure 8: Monthly trips/1.000 inhabitants by number of operators

In conclusion, the data shows that medium monthly trips range between 50 and 140 per 1.000 inhabitants. It is observed that medium monthly trips are higher for cities with three and four operators. Notably, though, cities with four operators exhibit the narrowest range of monthly trips, with the count potentially being as low as that of a city with a single operator, approximately 20 monthly trips. **The most favorable range is demonstrated by cities with three to four operators, which maintain high minimum monthly trip numbers and comparably high maximum monthly trip numbers.**

Relationship between number of monthly trips and number of vehicles per 1.000 inhabitants

Furthermore, it is relevant to analyze the correlation between the number of vehicles and the number of trips, since this might show what could happen if additional vehicles are brought to market. Figure 9 visualizes this correlation and additionally the different regulatory models are also highlighted. From the graph it could be concluded that there is a strong linear correlation between the number of vehicles and the number of monthly trips. To validate whether this is truly the case, the research calculated the Pearsons Correlation Coefficient (PCC). This coefficient represents the linear correlation between two datasets. The value of the coefficient is situated between -1 and 1. The negative value indicates a strong negative correlation, whereas the positive value results in the opposite. A p-value indicates whether the result is significant. The results of this specific statistical test are as follows:

- The PCC is r = 0.91 indication a positive, linear correlation
- The p-value is p = 1.37e-23, which indicates that the correlation is statistically significant.

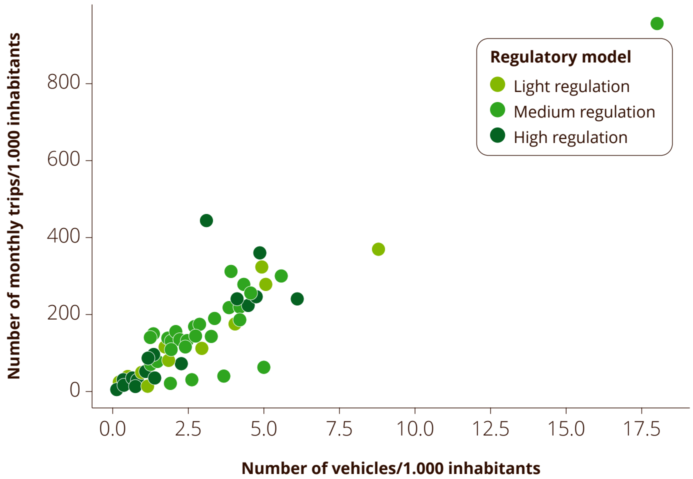


Figure 9: Correlation between number of vehicles/1.000 inhabitants and number of monthly trips per 1.000 inhabitants per regulatory model

This finding suggests that bringing additional vehicles to market will almost certainly result in additional micromobility trips. Given the fact that 38% of micromobility trips are complementing public transport[9], this would strongly stimulate the usage of public transport and could lead to a modal shift effect from car transport to other transport modes. On the other hand, this result also shows that implementing a hard cap on total e-scooters on the market would result in fewer trips and therefore could also hinder the usage of public transport.

KEY FINDINGS

- More stringent regulation comes at a higher cost for city administrations
- More regulation results in higher prices for the usage of micromobility services and fewer monthly trips, meaning lower adoption of the service
- Monopolies result in significantly smaller fleet sizes per 1000 inhabitants and higher costs for users
- Cities with three to four operators have the most favorable range of monthly trips per 1000 inhabitants, meaning that adoption of the service is higher
- Bringing additional e-scooters to market results in more trips. Given the strong interconnection with public transport, hard caps hinder public transport usage.

[9] Oliver Wyman, How Shared Mobility Impacts The Global Urban Landscape, 2023

Conclusions and recommendations

The research for this report can be distilled into several key findings that are most relevant for policymakers seeking to define e-scooter regulations in their cities.

FINDINGS:

01. Light Regulation and Medium Regulation regimes are currently the most common across Europe.

02. Light Regulation (especially MoUs), Medium Regulation, and High Regulation models all offer cities a similar degree of control, despite cities perceiving that more stringent regulations enable better monitoring and management of shared e-scooter services.

03. The more regulated a market becomes, the more financial resources a city needs to allocate to prepare and monitor shared e-scooter services. The cost is highest for High Regulation regimes, with cities spending up to 160 days per year managing tenders and monitoring compliance.

04. Cities with High Regulation regimes have significantly higher user costs per e-scooter trip, compared to Light and Medium Regulation regimes, as well as fewer monthly trips, meaning lower adoption of the service.

05. Cities with three to four operators have higher level of adoption of micromobility services

06. Fleet caps imposed in High Regulation markets result in lower e-scooter utilization, limiting their benefits.

RECOMMENDATIONS:

Based on the key findings above, there are five recommendations for city administrations in order to release micromobility benefits:

01. Before implementing any regulatory scheme, city officials should thoroughly analyze the different models and prioritize those that enhance accessibility and shift people from cars toward more sustainable transport modes.

02. For cities implementing shared e-scooter regulations for the first time, regulators should prioritize Light or Medium regulations, due to their lower costs and greater flexibility.

03. Cities officials should be conscious of the negative impact of hard fleet caps on the adoption of shared e-scooters and their sustainability benefits.

04. Rather than hard fleet caps, dynamic fleet caps could be implemented instead, based on performance metrics such as average daily trips per vehicle, parking compliance, and others.

05. A minimum of four shared e-scooter operators is recommended to ensure sufficient competition, innovation and affordable services, as well as to reduce the risk of an eventual monopoly in case of operators ceasing operations or consolidation within the industry.

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