

TEACHING MATERIAL GUIDANCE

1) Title of the material

Aguilera-García, Á.; Gomez, J.; Sobrino, N.; Vinagre Díaz, J.J. Moped Scooter Sharing: Citizens' Perceptions, Users' Behavior, and Implications for Urban Mobility. Sustainability 2021, 13, 6886. <https://doi.org/10.3390/su13126886>

<https://www.mdpi.com/2071-1050/13/12/6886>

2) Which section of the SUMP it is relevant to?

This paper is aimed at providing a first insight on moped sharing demand by exploring the usage and opinions towards this new mobility alternative. Therefore, the article can be linked to the third, fourth and fifth sections of the SUMP circle related respectively to the determination of planning framework, analysis of the mobility situation (in particular the analysis of problems and opportunities for all modes of transport - **subsection 3.2.**), scenario building and joint evaluation (development of scenarios of possible futures - **subsection 4.1.**) and vision and strategy development (arguments for stakeholders – **subsection 5.1.**).

3) Which Mobility Manager knowledge this material is the most relevant to?

It is related to Transport and mobility planning (section 1 of the Mobility Manager competencies) especially 1d (d. development of mobility solutions meeting community challenges).

4) Problem approached and content overview

Problem approach – providing a first insight on moped sharing demand by exploring the usage and opinions towards this new mobility alternative. The study used data from an online survey conducted in Spain, one of the countries with the highest implementation in the world in terms of moped sharing fleets. Kruskal-Wallis tests were carried out to identify the segment of the urban population that is more likely to share mopeds, and additional statistical differences in means were carried out for specific variables related to moped sharing. The paper also provides a better understanding of the market for shared mopeds and some implications for urban mobility, such as the potential role of shared mopeds in reducing vehicle ownership and their impact on urban modal shift. In addition, two discrete choice models were developed to analyse the key determinants of willingness to use shared mopeds and to explore individuals' views on whether private vehicle ownership would be unnecessary in the future.

The results indicate that age, occupation, income and environmental awareness appear to be among the main reasons for potential future use of these services. The results may be useful for both operators and transport planners when designing actions and policies concerning this mobility option and urban mobility in general.



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This study aims to investigate the use of and opinions on this urban mobility alternative. For this purpose, an online questionnaire was distributed in Spain, the country with the highest deployment of shared electric mopeds in Europe, especially in those Spanish cities where moped sharing services are available. The quantitative analysis of the questionnaire, together with the development of discrete choice models, provides a better understanding of the moped sharing market, as well as some implications for urban mobility, which is of great interest to both operators and transport planners when designing actions and policy efforts regarding this environmentally friendly mobility option. Furthermore, the paper examines the relationship and impact of moped sharing on other alternative modes of transport, as well as the perception of moped sharing services by both users and non-users. It should be noted that the kick-style electric scooter market, also known as stand-up electric scooter sharing, is not analysed in this study.

5) Who could be interested in this material?

The article is aimed at students and those looking for inspiration in implementations of shared mobility services in cities when such measures are applied in SUMP.

6) What is worth mentioning as an innovative factor for the reader?

This article presents the first insight into moped use and opinions on moped sharing, using data collected from an online survey conducted in different Spanish cities. The survey revealed the key role of sociodemographic variables in moped use (frequent, occasional and potential users). According to the survey data, there seems to be a higher proportion of shared moped users among men, young adults, people with a high level of education, with a high mobility index, living in the inner city (due to the area currently served by operators). Moreover, age, occupation, income and environmental awareness seem to be among the main reasons for the potential use of these services in the future. This picture is interesting both for moped sharing operators and for transport planners who want to target specific segments of the user market (both users and non-users). In this way, direct policy action could target specific segments to promote this sustainable urban transport service. Furthermore, these results point to wider uptake of moped sharing in the coming years, along with an increase in education levels and greater familiarity of urban residents with new technologies.

The second conclusion concerns the impact of the advent of public mopeds on urban mobility. These services have a positive impact on urban transport as they can reduce the use of private vehicles and thus alleviate the current problems of congestion and scarcity of public space in urban environments. However, shared electric mopeds can also capture demand from public transport and active transport modes. Consequently, moped sharing services, in their current form, have an unclear impact on urban sustainability. This fact highlights the importance of integrating moped sharing schemes with public transport to promote their complementary use (including through intermodal travel, e.g. moped sharing would act as a feeder to the public transport network in areas with lower transport accessibility) and to direct urban mobility towards sustainability. The last



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conclusion concerns the motivations and barriers to moped use. On the one hand, moped users emphasise that mopeds are easy to park and provide a flexible option for driving on narrow streets. Consequently, mopeds appear to be particularly attractive when travelling in urban areas, mainly central districts/neighbourhoods. Consequently, widening the currently served area was reported as one of the main priorities among moped users. For this reason, policy action could be directed towards promoting the extension of mopeds to urban areas outside central neighbourhoods, taking into account the potential benefits for urban quality of life. Especially in large metropolitan areas, local authorities should support the extension of the area served, as shared mobility seems to be less competitive in suburban environments. These new transport services could also be promoted to feed into public transport or could be enhanced in urban areas with low accessibility to public transport. On the other hand, the main barriers are related to little knowledge of motorcycle/moped riding or ignorance about moped sharing. Surprisingly, prices, the registration process or the area served were not seen as the main barriers preventing moped use. All this may indicate that the main barrier would be related to the first experience with a shared moped. To overcome this problem, planners and operators should explore formulas to provide individuals with the first contact with this mobility alternative (for example, operators could provide a trial period). In this way, a significant proportion of potential users could adopt this shared mobility option at a low cost.

7) Limitations

The presented conclusions may serve as an inspiration for Polish cities regarding problems that may occur during the implementation of new shared mobility solutions. Future work should increase the sample size, especially for moped users, e.g. by combining online questionnaires with the following research methods: personal interviews, telephone surveys, etc. Additionally, insights would be improved by including other countries with lower public moped penetration. It should also be noted that the survey campaign was conducted before the COVID-19 pandemic. Due to changes in people's habits and travel patterns, investigating moped use in the post-COVID-19 pandemic era is mandatory. In addition, a more complex analysis using econometric techniques would be needed to statistically identify key variables determining the use of public mopeds through, for example, latent class models, the theory of values, beliefs and norms, the technology acceptance model or to analyse user behaviour in the social environment.

For this purpose, it is necessary to design an attitude survey to capture the psychological variables that determine the use of moped sharing services. Furthermore, the adoption of shared electric mopeds together with other types of shared mobility needs to be explored in more depth, given the importance of understanding the differences in the current and future role of shared mopeds in sustainable urban transport compared to other types of shared mobility. Finally, future research is needed to quantify the carbon footprint and impact of electric mopeds concerning certain components such as batteries.

