Regional Growth Conference

JUNE 9-11, 2022 | PATRAS, GREECE

REGIONAL GROWTH CONFERENCE

Identification of the Impact of Ridesharing Services in Athens

Athens, June 2022

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Department of Transportation Planning and Engineering

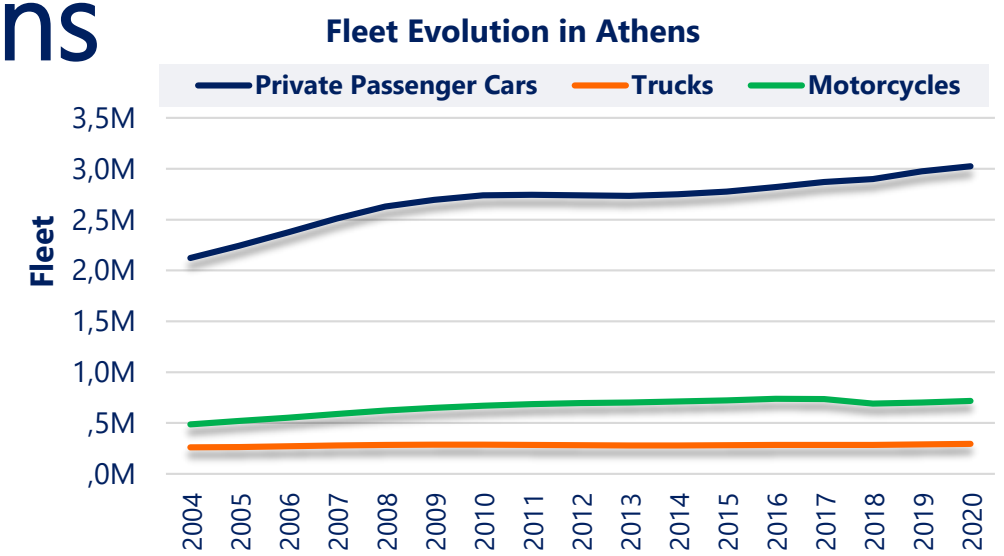
Scope & Objective

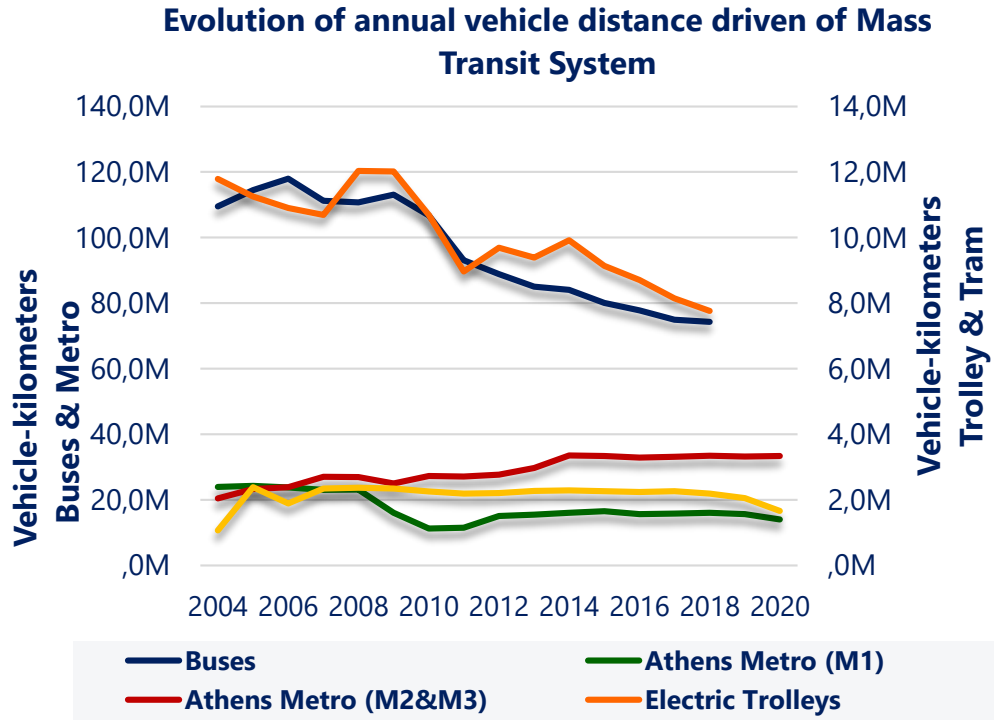
- The scope of this study is to identify and quantify the socioeconomic impacts of introducing real-time, fee-based ridesharing services in Athens

- The objective is the ridesharing impact assessment in the social welfare of Athens conducting a Socioeconomic Analysis with a time horizon of 10 years

Current Mobility Services in Athens

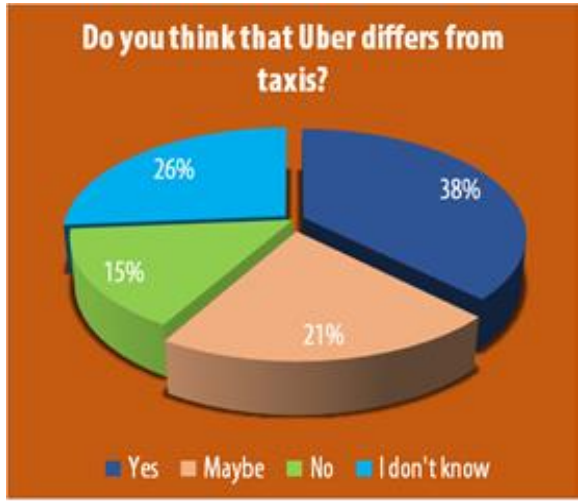
- Passenger cars constitute 69% of the total vehicle fleet, while two-wheelers constitute 21%
- Athens the 3rd lower index of visitors' parking spaces per 1.000 inhabitants compared to other Greek cities
- The Athens public transport system consists of 3 metro lines, 2 tram lines, a sub-urban rail line and about 250 bus and trolley bus lines
- There are about 18,000 taxis currently operating in Athens while the taxi market is heavily regulated with respect to licensing and tariffs
- Uber ridesharing services were launched for the first time in Greece on December 2014. Currently, only UberTAXI is available in Greece
- To date, legislation and especially Law 4530/2018 provisions set strong barriers in the introduction of ridesharing services

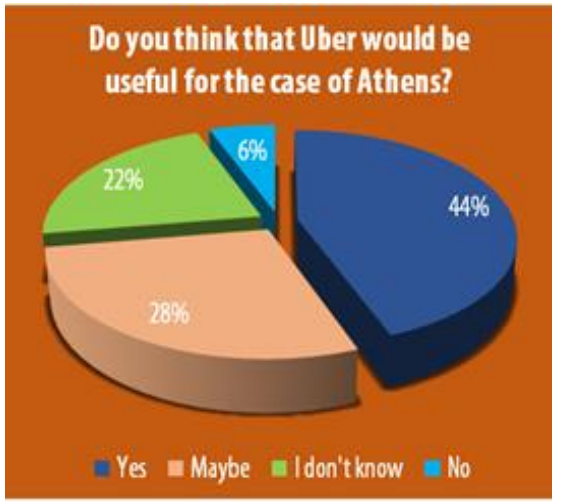




The Survey & Mode Choice Model

- A questionnaire-based survey was undertaken, aiming at collecting information on the level of understanding and preferring ridesharing services over other travel options in the Athens Metropolitan area
- The sample follows a properly balance stratification with respect to gender, age, education and income
- About 46% of respondents would not prefer to share a ride with other unknown fellow passengers in a private car
- As part of the survey, a stated-preference experiment is designed and implemented
- All signs of the MNL specification are as expected
  - an increase in costs or travel time lowers the utility of a mode
  - comfort coefficient has a positive value
- Assuming all attributes equal, taxis exhibit the lowest utility among modes





	Private Car	Taxi	Public Transport	Ridesharing
Constant*	-	-0.891 (10.757)	-0.239 (-2.725)	-0.277 (-5.180)
Cost*			-0.123 (-11.055)	
Time*			-0.006 (-4.514)	
Comfort*			0.458 (10.594)	

Business Models - Scenaria

Given current conditions and prospects in the Athens transportation market, service provision and possible legislative regulations, a fairly regulated market could consider 2 alternative business models for introducing ridesharing services:

Scenario A (Fully licensed service provision)

- It assumes that ridesharing services are **offered by car-rental companies and travel agencies**, as a car-hiring service with professional drivers
- It is based on **OECD's recommendations** according to their country assessment report for Greece, in which the following is stated: "We recommend abolishing the minimum duration of the service for car-rental-with-a-driver. By removing the artificial segmentation of the market, consumers will benefit from choosing freely from a wider range of services".

Scenario B (Light licensed service provision)

- It considers ridesharing services **offered by properly licensed individuals** in the form of small businesses
- **Market entrance** is allowed at a small fee, to any interested individual complying with pre-defined standards for vehicles and driver qualifications
- Services are only booked online and telephone reservation or **street hailing are not possible**
- It follows the paradigm of **Estonia and Lithuania**; in these countries regulated real-time ridesharing offered by individuals is available, but street hailing is reserved for taxis only.

Market Shares

- Using the mode choice model and market projection method, market shares per mode can be straightforwardly estimated

Mode	BAU scenario	Scenario A (full)	Scenario B (light)
Private Vehicle	60.1%	55.9% (-4.3%)	54.8% (-5.3%)
Public Transport	32.6%	30.3% (-2.2%)	29.9% (-2.7%)
Taxi	7.3%	6.6% (-0.7%)	6.5% (-0.8%)
Ridesharing	N/A	7.2%	8.8%

- Introduction of ridesharing is expected to have a positive impact towards reducing private car usage over the BAU scenario, while it will slightly affect usage for public transport and taxis

Impact Analysis

- Daily average demand for ridesharing (person-trips) per scenario (year 2025)

	Scenario A (full)	Scenario B (light)
Base Demand	493,271	608,581
Induced Demand	102,942	113,612
Annual Average Seasonal Demand	6,757	6,757
Total Daily Person Trips	**602,970**	**728,950**
Total Daily Vehicle Trips	**354,688**	**428,794**

- A net 17,734 to 35,733 equivalent full and part-time jobs are expected to be created by 2025
- These jobs would be mostly created by travelers shifting from private cars to ridesharing
- An estimated 4.3%-5.3% of private vehicle users and another 0.7%-0.8% of taxi users will shift from private vehicles to ridesharing
- Savings in urban space are expected to be about 4.5-5.8% of the Athens downtown area (39.8 km2) for year 2025

Socioeconomic Analysis

- For each scenario, the following initial and operational costs with respect to ridesharing drivers as well as the direct socioeconomic benefits are estimated

Costs (-)

- **C1 Initial Investment Cost**
  - C1.1 Professional Driver License Fees
  - C1.2 Vehicle Purchase Costs
  - C1.3 Administrative Costs
- **C2 Ridesharing Drivers Operational Costs**
  - C2.1 Ridesharing Operational Costs
  - C2.2 Ridesharing Platform Cost
  - C2.3 Vehicle Leasing

Benefits (+)

- **B1 Ridesharing Users Surplus**
  - B1.1 Travel Time Savings
  - B1.2 Private Vehicle Operating Cost Savings (VOCs)
- **B2 Ridesharing Income Tax**
- **B3 Externalities**
  - B3.1 Reduction in Road Casualties
  - B3.2 Environmental Impact (CO_2, NO_x)

Socioeconomic Analysis

Scenario A (full)		NPV (5%)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
				Ridesharing Operation								
Investment & Operational Costs	mEUR	-2,156.2	-5.0	-301.3	-305.4	-309.5	-314.1	-318.8	-324.0	-329.7	-333.6	-337,5
B1 Ridesharing Users Surplus	mEUR	1,252.0	0.0	166.7	172.4	177.3	181.5	186.3	191.0	196.3	201.1	206,0
B2 Ridesharing Income tax	mEUR	856.7	0.0	119.0	121.0	123.0	125.0	127.1	129.2	131.4	133.6	135,8
B3 Road Accidents	mEUR	51.8	0.0	7.8	7.8	7.8	7.8	7.7	7.7	7.6	7.3	7,1
B4 Environment	mEUR	8.5	0.0	1.5	1.7	1.6	1.4	1.2	1.0	0.6	0.3	1,6
Total economic Benefits	mEUR	2,169.0	0.0	295.1	302.9	309.7	315.8	322.3	328.9	336.0	342.3	350,5
ENPV	mEUR	12.8	-5.0	-6.3	-2.5	0.2	1.6	3.5	4.9	6.3	8.7	12,9
ERR		17%										

Scenario B (light)		NPV (5%)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
				Ridesharing Operation								
Investment & Operational Costs	mEUR	-2,103.5	-368.4	-247.6	-250.2	-252.7	-256.0	-259.3	-263.4	-268.3	-270.2	-272.0
B1 Ridesharing Users Surplus	mEUR	1,538.5	0.0	205.1	212.1	218.0	223.1	228.9	234.6	241.1	247.0	252.9
B2 Ridesharing Income tax	mEUR	870.0	0.0	120.8	122.9	124.9	127.0	129.1	131.3	133.4	135.7	137.9
B3 Road Accidents	mEUR	54.4	0.0	8.3	8.3	8.3	8.2	8.2	8.1	7.8	7.5	7.2
B4 Environmental impacts	mEUR	10.7	0.0	1.9	2.1	2.0	1.8	1.5	1.2	0.8	0.3	2.0
Total economic Benefits	mEUR	2,473.7	0.0	336.2	345.4	353.2	360.1	367.7	375.2	383.1	390.4	400.1
ENPV	mEUR	370.2	-368.4	88.6	95.2	100.5	104.1	108.4	111.8	114.8	120.3	128.0
ERR		24%										

Conclusion

- Travelers would mostly shift from private car usage (4.3% to 5.3%) and to a much lesser extend by PT (2.1%-2.7%) and taxis (0.7%-0.8%)
- While being a substitute mode for ridesharing, taxis do not seem to be significantly affected
- Ridesharing services in Athens can reduce CO_2 emissions by up to 121,5k tonnes and save up to 48 million liters of fuel within a decade
- The introduction of both ridesharing scenarios for 10 years contribute to social welfare considering the positive ENPV and a high ERR index
- In Greece, real-time ridesharing services are currently under restricting regulatory schemes, which somehow limit the potential of implementing a shared economy
- However, this study shows that the introduction of ridesharing in Athens, in a fair regulated manner, could benefit the economy and the society

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