Gender differences in transport patterns in Budapest, and their relevance for mobility planning

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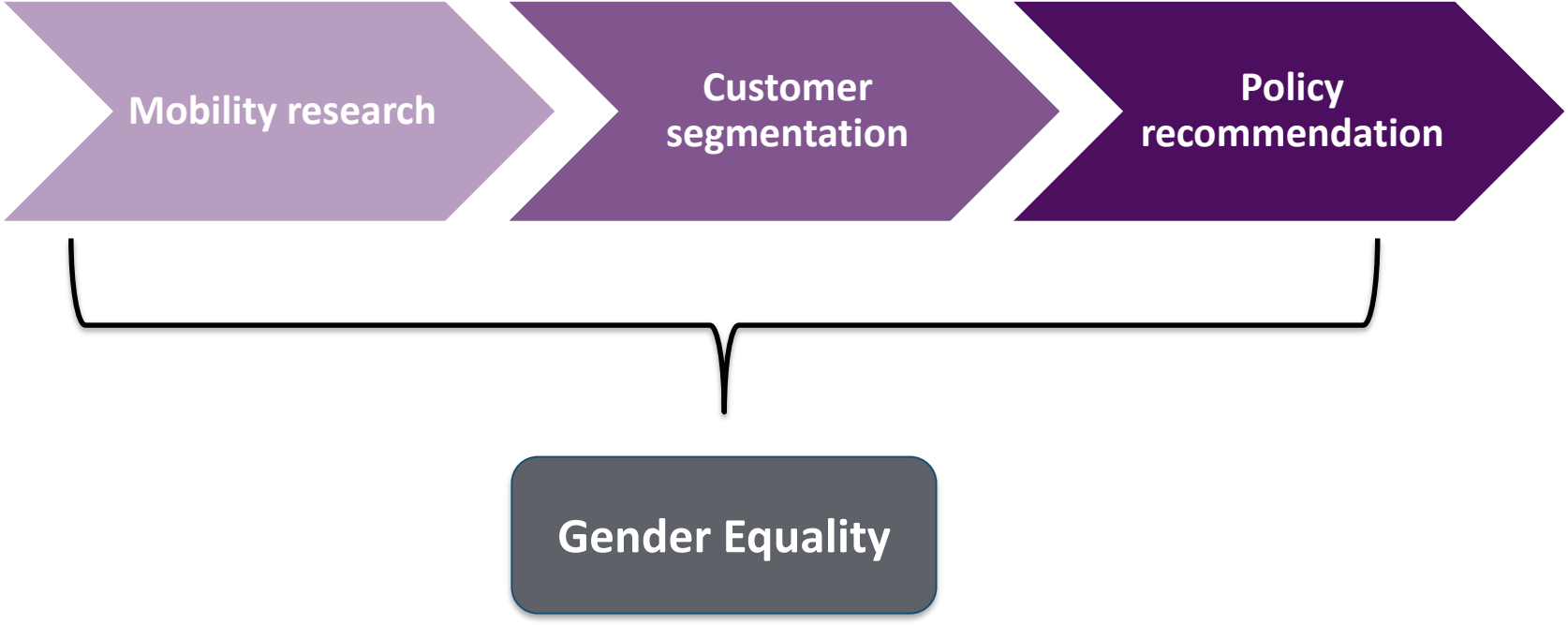
Dataset and methodology

Path toward gender equality



Modal Split dataset – household survey

Representativity

- Representative of Budapest (1.7 million habitant, 525 km^2)
- n=16515

Respondents

- Commuters in Budapest and / or in a 30-kilometer agglomeration (measured from the administrative boundary) on pre-determined weekdays

Data Collection & Variables

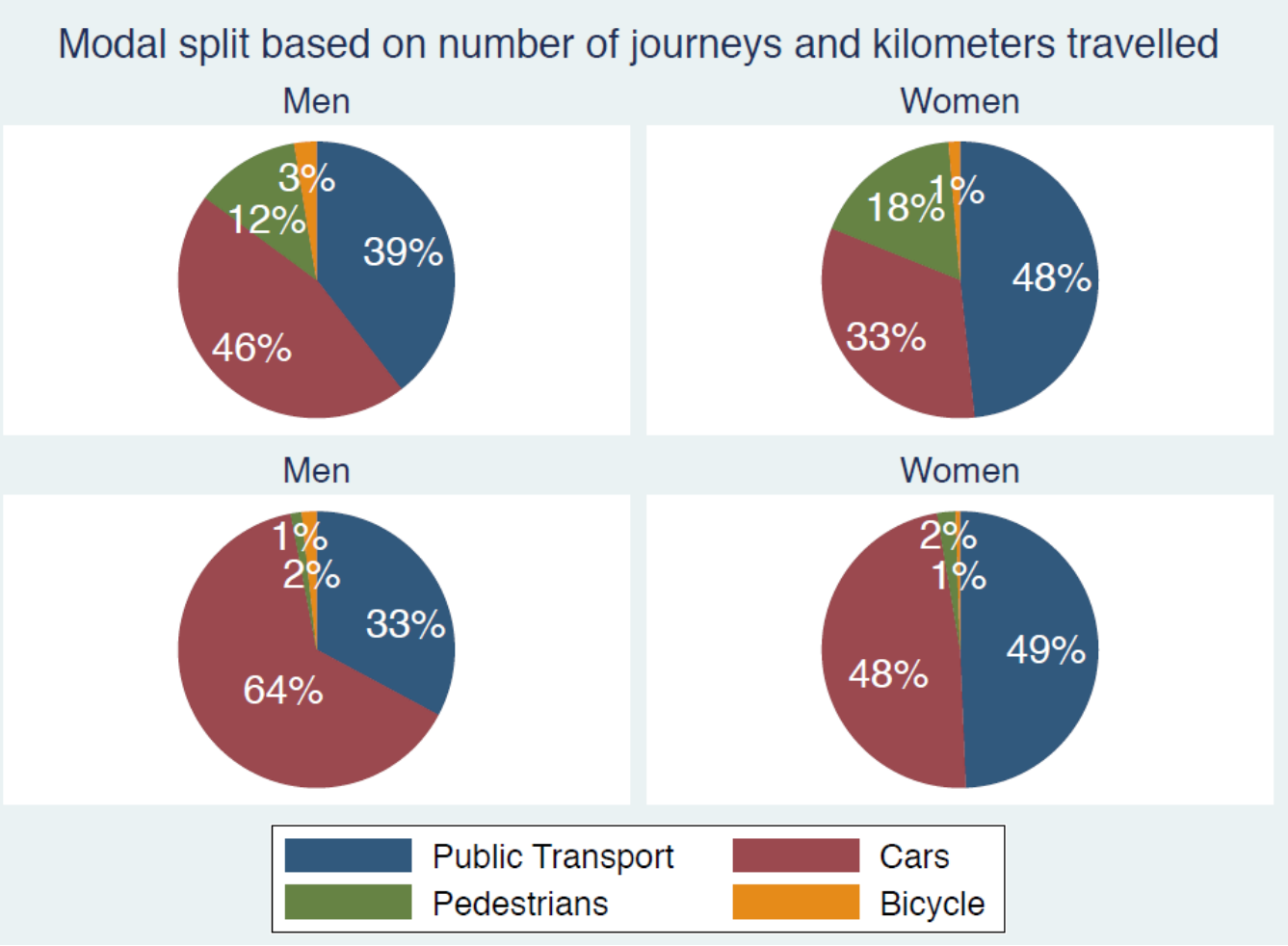
- All previous day's travel activity, age, highest level of education, economic activity, subjective income levels
- 2021. October 12-14 and 19-20

Methodology

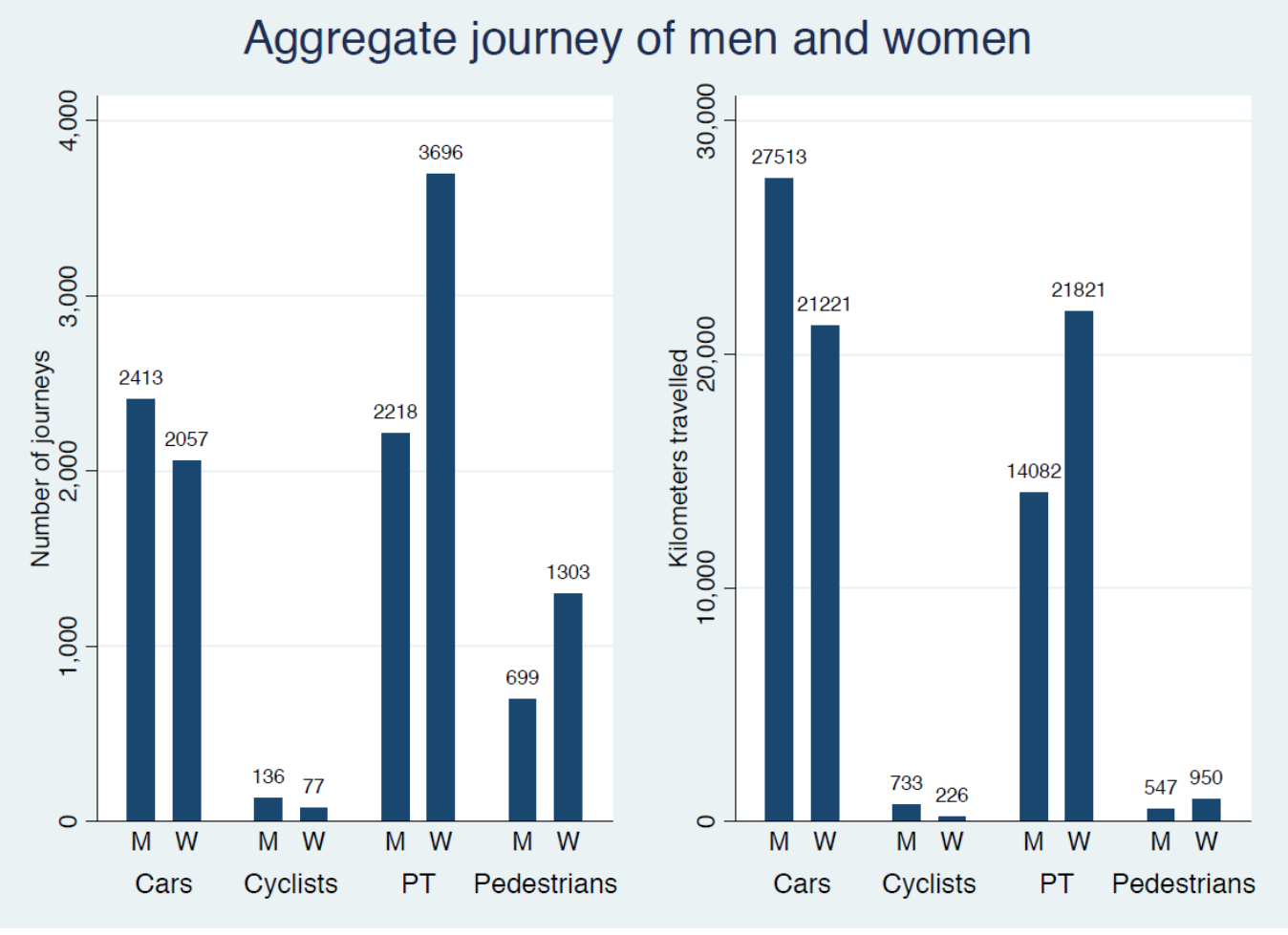
- Descriptive statistics
- Probit regression

Results from the 2021 modal split household survey

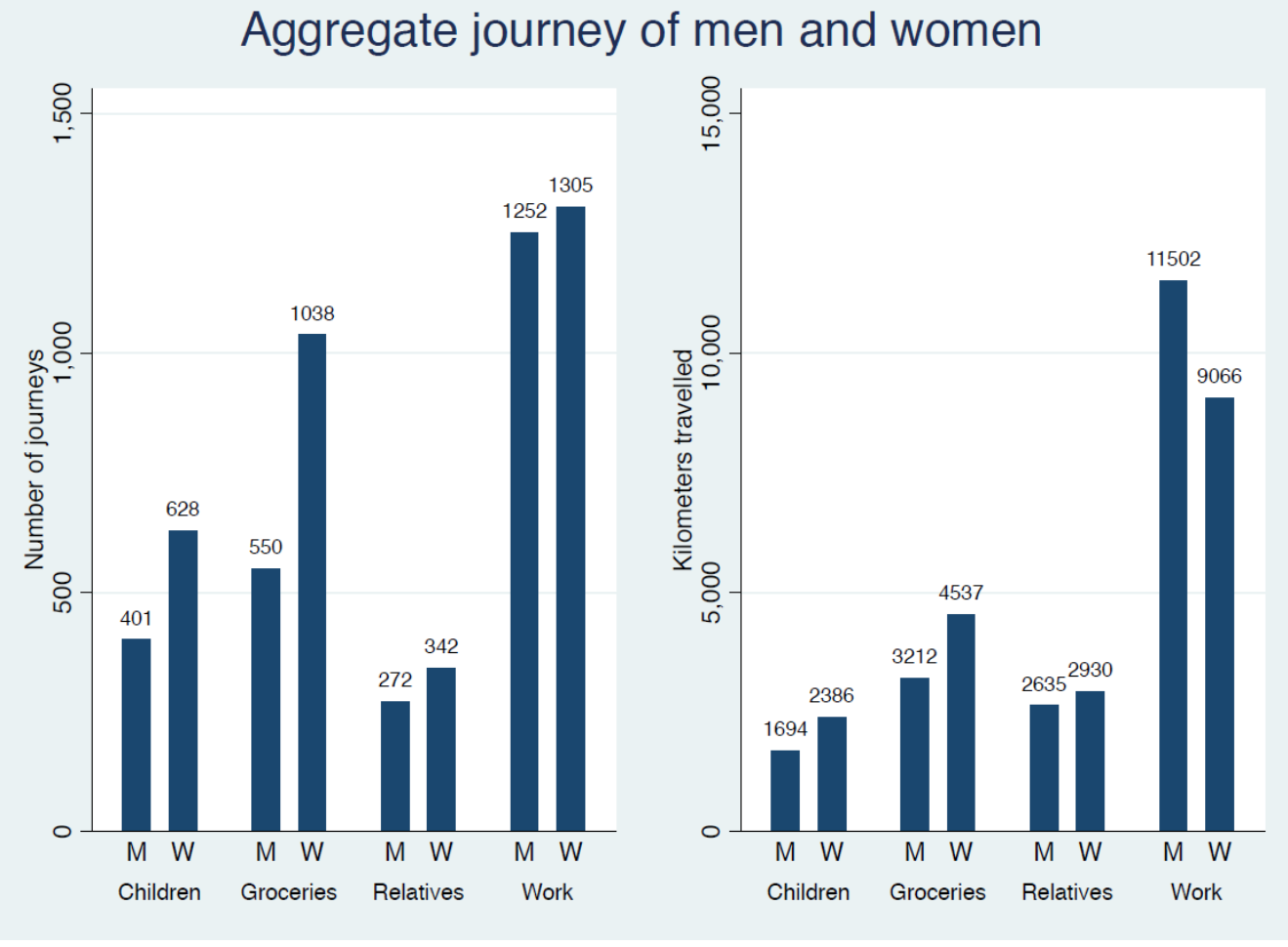
Women walk and use public transport more often



Men have longer journeys than women



Household related trip purposes are higher for women



Descriptive statistics

Aggregated, women travel more both in terms of distance and number of journeys

Average trips / day / person		
	Men	**Women**
Number of trips	2.36	2.50
Number of non-commuting trips	1.23	1.32
Travel distance per trip (km)	8.60	7.10
Number of partial trips	1.23	1.27

On the individual level, there is no significant gender difference in the number of daily trips and transfers, but men have longer journeys

Correlation between transport modes and demography

Correlations		
	Gender: Men (1) - Women (2)	Transport mode
Transport mode	-0.1228	1
Kilometer travelled	-0.0689	0.3105
Economic activity	-0.0676	0.1804
Travel purpose	0.0741	-0.1220
Educational attainment	0.0391	0.1435
Subjective income level	0.0008	0.1073

Women tend to use more sustainable transport modes. Car use positively correlates with the length of the trip.

Beyond descriptive statistics, study of causal links

What aspects influence car use?

- **Probit regression** $Y_{ij} = \alpha + \beta P_i + \gamma T_{ij} + \varepsilon_{ij}$
- $\boldsymbol{Y_{ij}}$: Trip was made by car or not (0,1)
- $\boldsymbol{P_i}$: Personal characteristics (gender, age, educational attainment, subjective income level)
- $\boldsymbol{T_{ij}}$: Trip characteristics (distance, purpose of the trip)
- **Cluster** by starting point (area)

Cross sectional study (2021), first results

Factors influencing car use

Probit regression

Car user **Probit regression**	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender	-.37	.099	-3.73	0	-.564	-.176	***
Travel distance (km)	.03	.018	1.66	.098	-.006	.066	*
Age	-.005	.001	-5.15	0	-.007	-.003	***
Income	.437	.079	5.53	0	.282	.591	***
Economic activity	.148	.023	6.39	0	.102	.193	***
Education	.076	.034	2.21	.027	.009	.144	**
Trip purpose	.038	.029	1.31	.19	-.019	.094	
Constant	-2.322	.312	-7.44	0	-2.935	-1.71	***

Mean dependent var	0.403	SD dependent var	0.491
Pseudo r-squared	0.130	Number of obs	4676
Chi-square	.	Prob > chi2	.
Akaike crit. (AIC)	5486.363	Bayesian crit. (BIC)	5492.813

Marginal effects

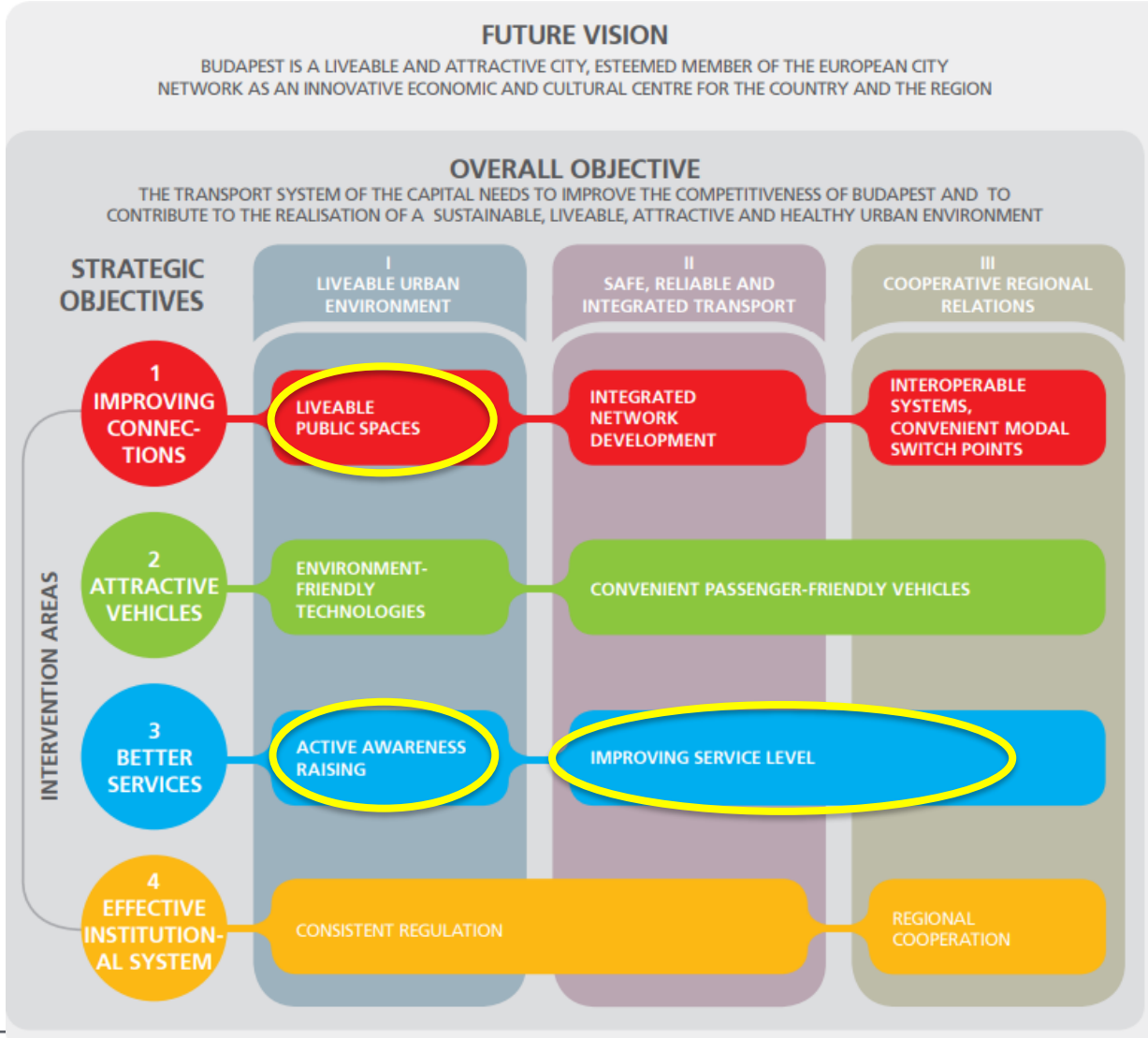
Marginal effects after probit
y = Pr(autos) (predict)
= .40170282

variable	dy/dx	Std.Err.	z	P>z	[	95%	C.I.
Gender	-0.143	0.042	-3.410	0.001	-0.225	-0.061	1.544
Travel distance (km)	0.012	0.007	1.590	0.112	-0.003	0.026	13.374
Age	-0.002	0.000	-5.910	0.000	-0.003	-0.001	42.023
Income	0.169	0.026	6.410	0.000	0.117	0.221	3.822
Economic activity	0.057	0.008	7.600	0.000	0.042	0.072	3.342
Education	0.029	0.014	2.100	0.036	0.002	0.057	2.785
Trip purpose	0.015	0.011	1.350	0.176	-0.007	0.036	2.170

From research to planning

Budapest Mobility Plan

SUMP of Budapest



Policy recommendations and insights

Liveable public spaces

- Safe and comfortable bicycle network
- Pedestrian friendly developments, tailored to different social and gender needs

Active Awareness raising

- Cycling promotion for women
- Promoting public transport and walking for men

Improving service level

- Improving safety and security on vehicles and stops, based on different gender needs

Thank you for your attention!

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