

MaaS acceptance in global South cities:

Comparison of Bogota, Barranquilla (Colombia) and Manila (Philippines)

Mauricio Orozco Fontalvo, Marc Hasselwander, Lenin Bulla, Sonia Mangones, Filipe Moura



UNIVERSIDAD NACIONAL DE COLOMBIA



Fundação para a Ciência e a Tecnologia



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TÉCNICO LISBOA

Introduction



MaaS has been mainly studied in high-income cities with extensive available transport infrastructures, like in Europe or Australia.

The few studies conducted in the Global South focus mainly on barriers and policies, adaptations and supply-side considerations.

However, there is no research on **USERS'** perspective or preferences on **MaaS in this region.**



Objective



1

Analyze the interest on MaaS in global South cities and understand factors that contribute to citizens' adoption intention.

2

Compare results from Bogota, Barranquilla and Manila to better outline different user preferences across various population groups derive better insights into the overall potential of MaaS in the global South.

Methodology

➤ RP-SP survey hosted on Limesurvey. (15 to 20 min “too long”)

➤ *Sections:*

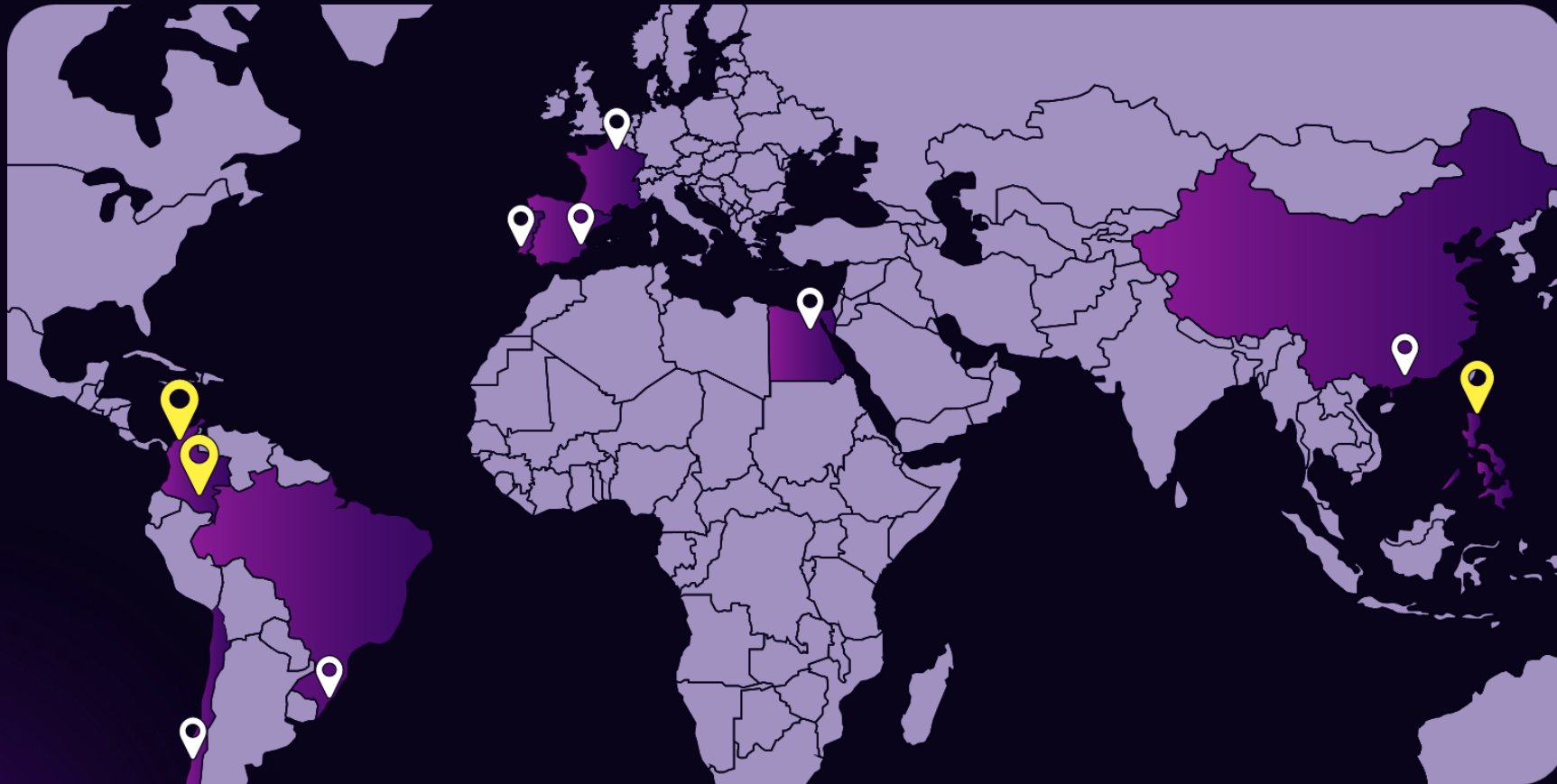
- The EUTAUT (Venkatesh, Thong, Xu, 2012).
- “Buy a feature” design thinking technique.
- Multimodal commute stress scale.
- Travel patterns
- Sociodemographics

➤ The survey was applied in Bogota, Barranquilla, and Manila. Specifically, we gathered a total of 753, 549, and 865 responses from these respective cities. Out of these responses, we attained 467, 316, and 473 complete responses respectively.

➤ A SEM was estimated per city.



MaaS Acceptance: *cities involved*



Latin America:

- Barranquilla
- Bogota
- Porto Alegre
- Santiago de Chile

Europe:

- Lisbon
- Valencia
- Ghent

Africa:

- Cairo

Asia:

- Manila
- Hong Kong



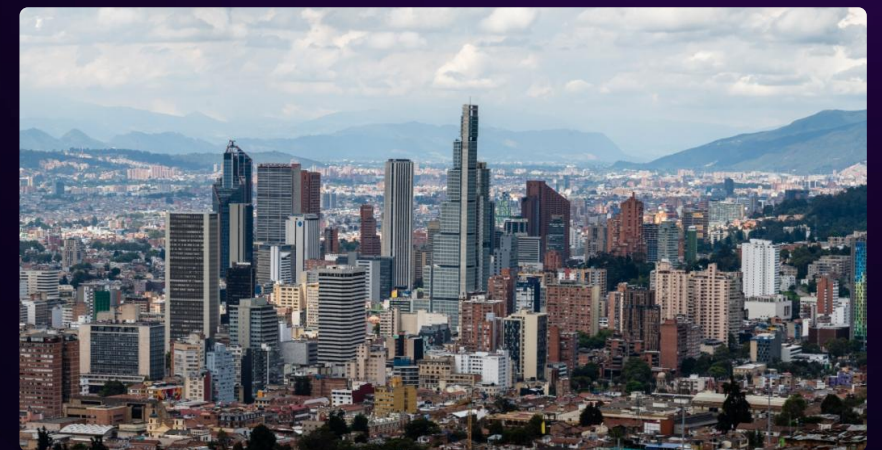
Barranquilla



Manila



Bogotá



Cities characteristics

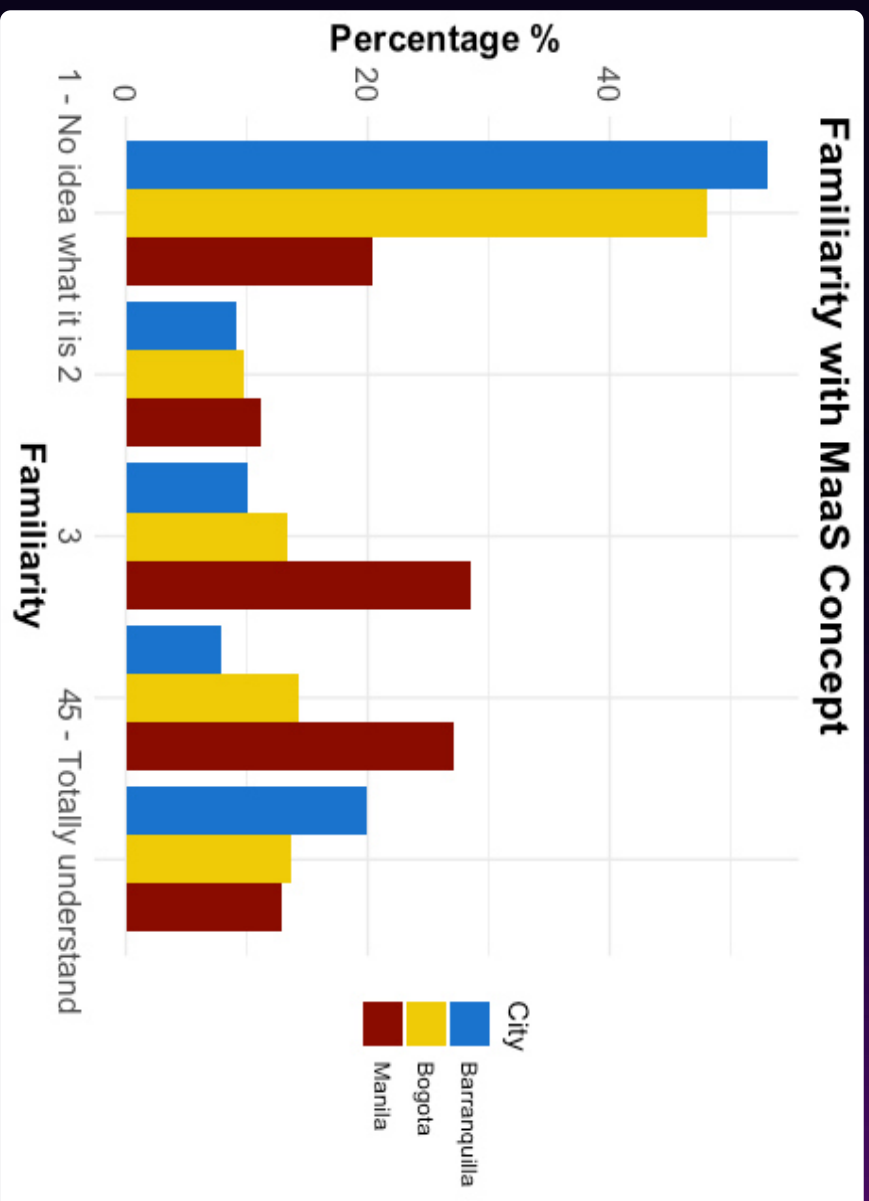


Statistic	Bogotá, Colombia	Barranquilla, Colombia	Manila, Philippines
Population	8 million	1.2 million	13.2 million
Area (km ²)	1587	154	636
Language	Spanish	Spanish	Filipino, English
GDP per Capita	12117	6275	5500
GINI Index (2019)	0.53	0.46	0.42
Elevation (m)	2640	18	16
Average Temperature	8°C - 20°C	24°C - 35°C	25°C - 31°C
Main Transportation	TransMilenio (bus rapid transit), taxis, private cars	Buses, private car, BRT, mototaxi	Jeepneys, buses, taxis, tricycles
Shared mobility services	Yes	No	Yes
Integrated transport	BRT, Bus and Cable car	No	No

*Münich: 1.4 million, 310 Km²

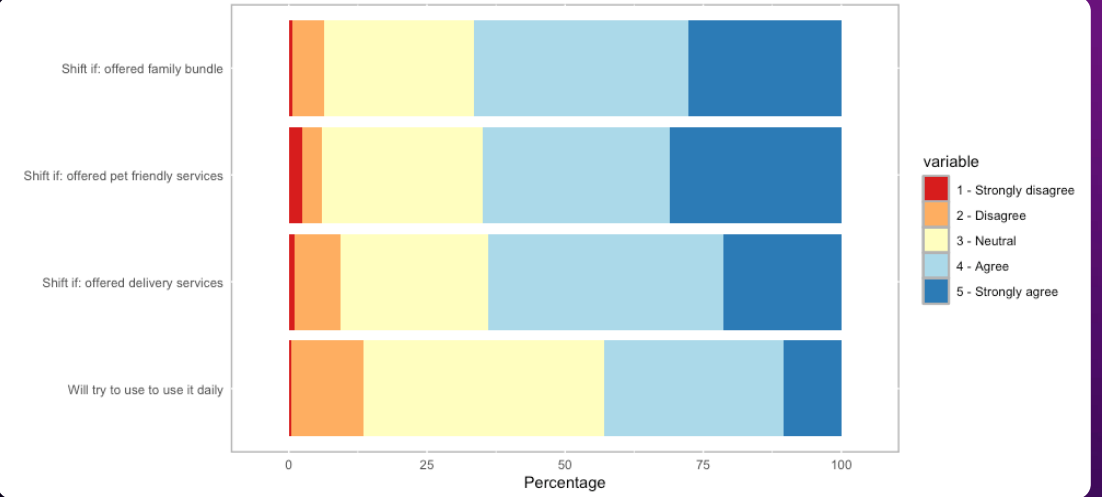


Results

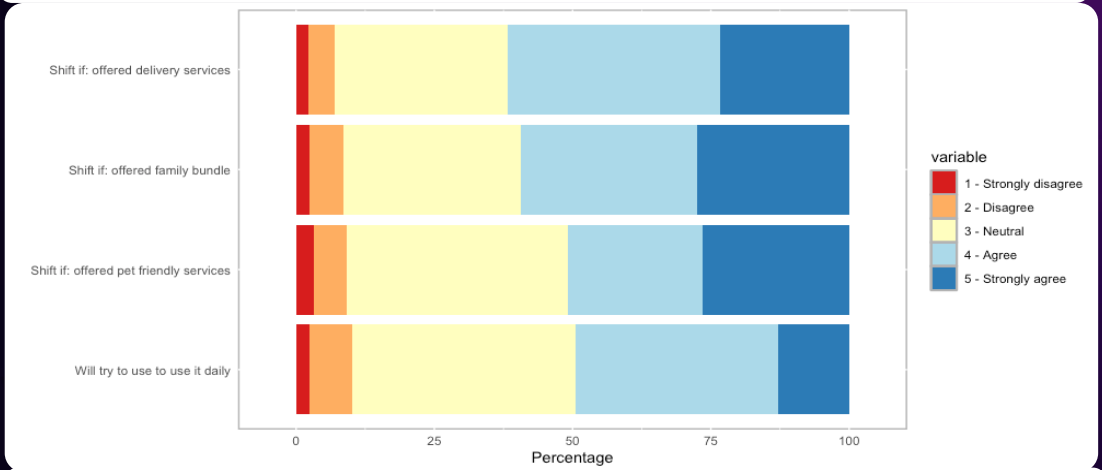


Results

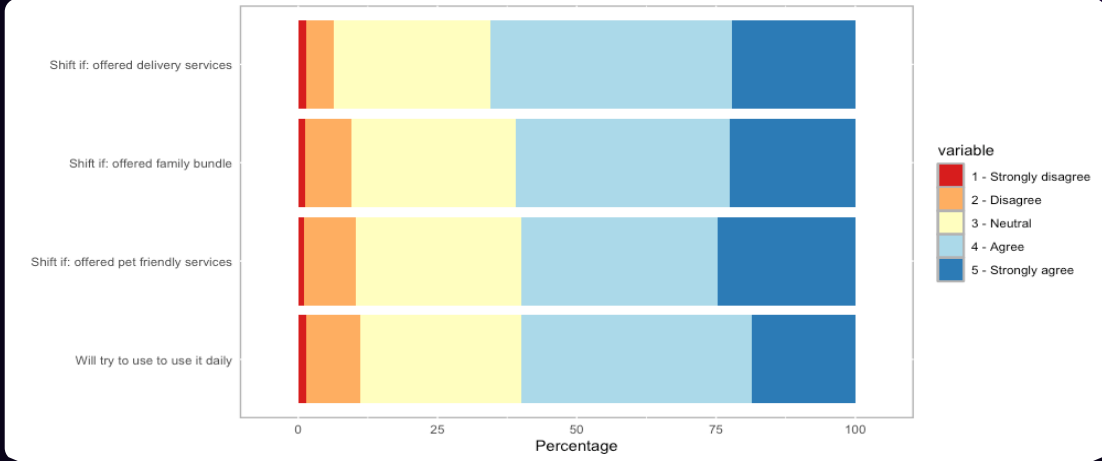
Bogotá



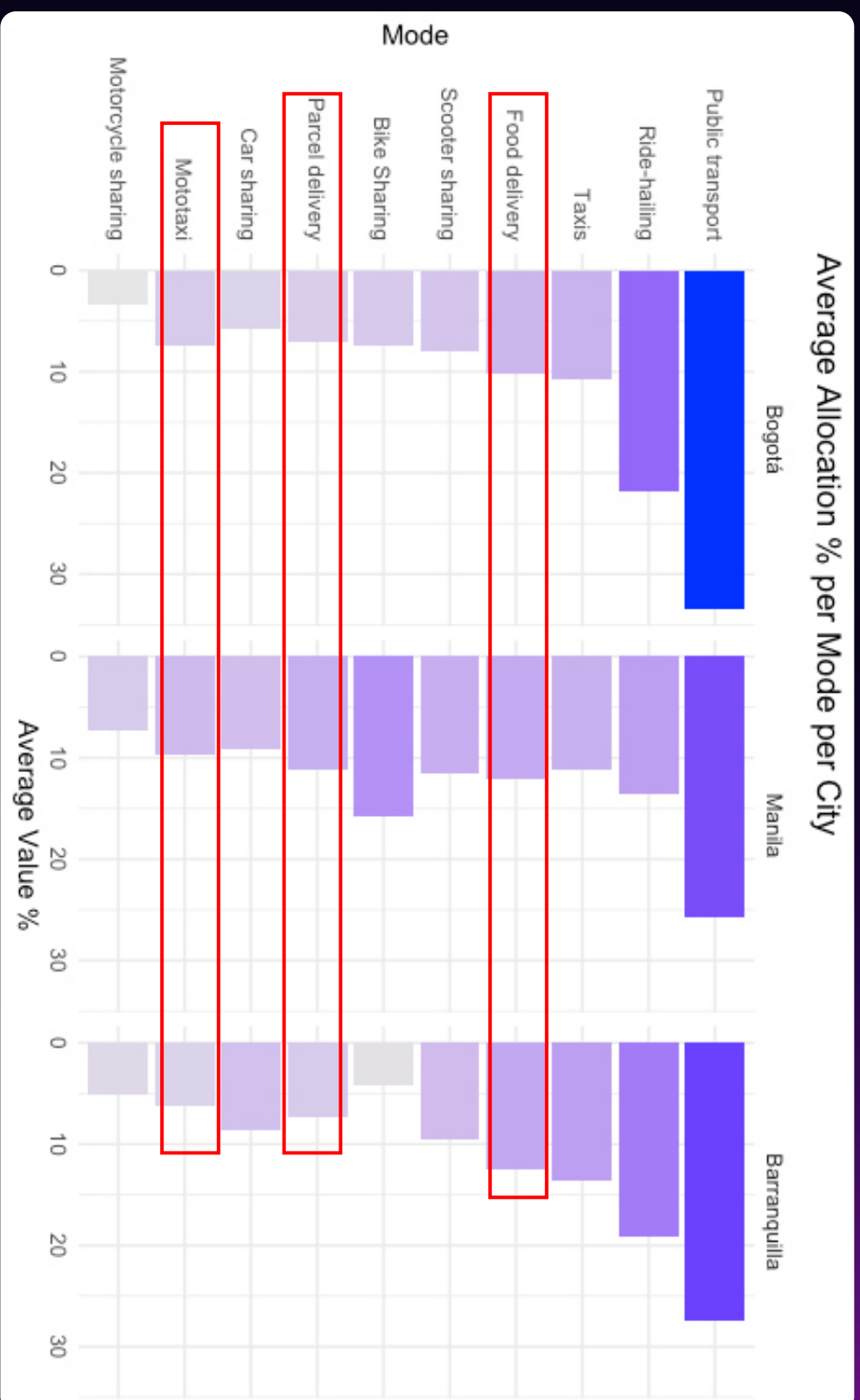
Barranquilla



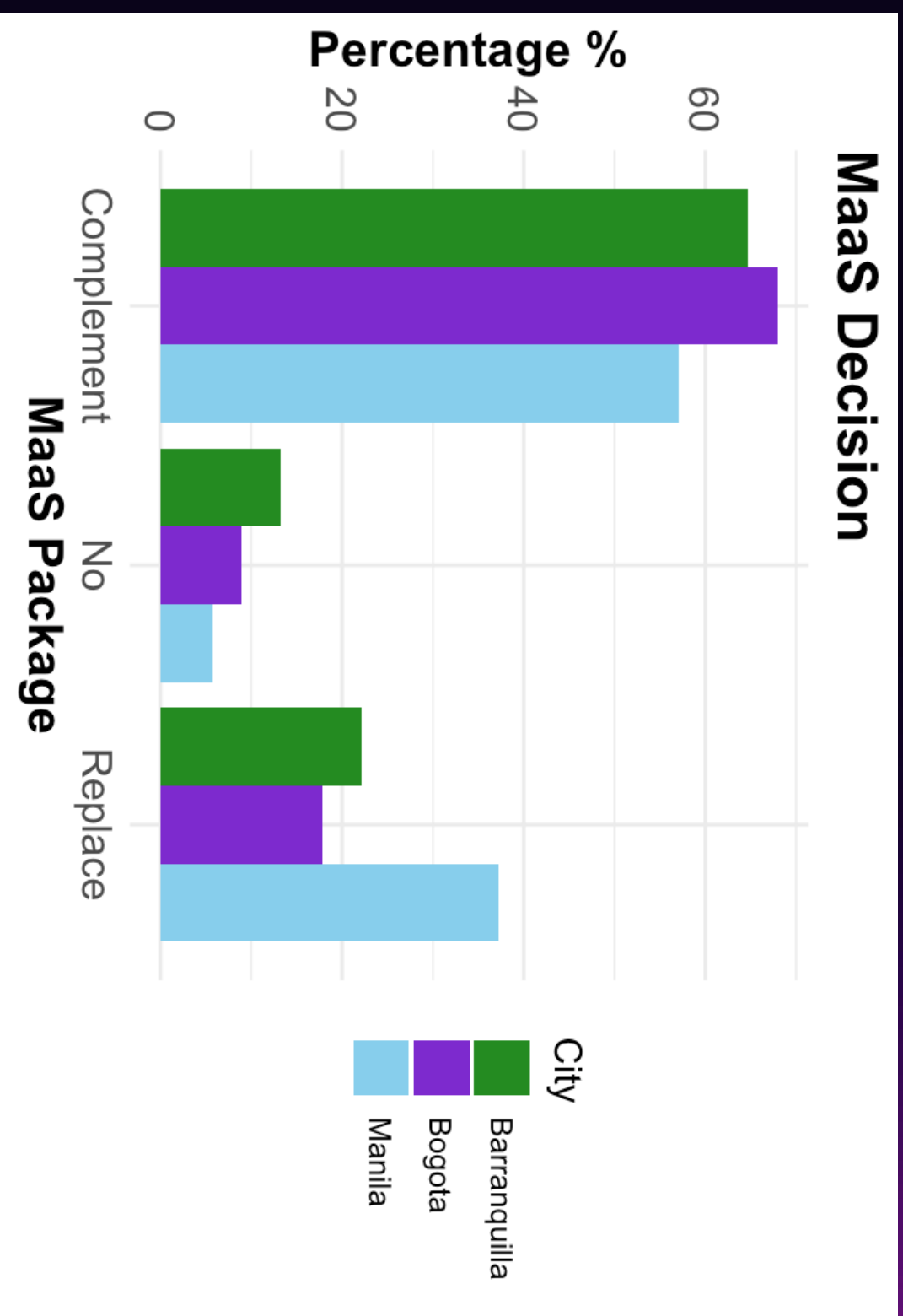
Manila



Results



Results



SEM presentation





MODEL RESULT

Bogotá

	Estimate	Std.Err	z-value	P(> z)
Perform	~			
Emplodum	-0.192	0.073	-2.631	0.009
longcmmt	-0.150	0.079	-1.913	0.056
Effort	0.204	0.096	2.131	0.033
Socinf	0.392	0.065	6.006	0.000
Effort	~			
Age	-0.019	0.003	-6.878	0.000
incm_gh	0.171	0.099	1.716	0.086
Chldrndm	-0.296	0.104	-2.840	0.005
Hedonic	~			
Socinf	1.181	0.140	8.441	0.000
MSStress	-0.065	0.018	-3.597	0.000
Trust	~			
Hedonic	1.135	0.132	8.582	0.000
SusAwr	~			
Socinf	0.315	0.078	4.057	0.000
incm_gh	-0.248	0.100	-2.476	0.013
Socinf	~			
Trust	-2.860	3.031	-0.944	0.345
IntUse	~			
Trust	0.036	0.082	0.442	0.659
Perform	0.570	0.058	9.905	0.000
Effort	0.026	0.056	0.455	0.649
Socinf	0.144	0.110	1.315	0.188
SusAwr	0.178	0.048	3.697	0.000
Hedonic	0.087	0.163	0.535	0.592
MSStress	0.079	0.018	4.438	0.000
Age	-0.002	0.003	-0.682	0.495
Emplodum	0.116	0.081	1.439	0.150
GendFem (Age)	0.145	0.093	1.552	0.121
knowMaaS	0.243	0.103	2.365	0.018
Fit				
RMSEA	0.048			
TLI	0.994			
CFI	0.990			



MODEL RESULT

Manila



	Estimate	Std.Err	z-value	P(> z)
Perform	~			
Pets	-0.150	0.086	-1.744	0.081
Ingcmmt	0.386	0.124	3.108	0.002
Effort	1.025	0.116	8.808	0.000
Trust	~			
MSStrss	0.051	0.026	1.990	0.047
Ingcmmt	-0.072	0.057	-1.275	0.202
Socinf	0.263	0.134	1.965	0.049
Effort	0.720	0.223	3.230	0.001
Emplodm	0.099	0.058	1.719	0.086
Effort	~			
PTUSER	0.088	0.053	1.674	0.094
Trust	0.800	0.102	7.807	0.000
Carown	0.051	0.037	1.379	0.168
IntUse	~			
Trust	0.340	0.109	3.110	0.002
Perform	0.260	0.067	3.882	0.000
Effort	0.107	0.121	0.885	0.376
Socinf	0.306	0.078	3.904	0.000
MSStrss	0.082	0.020	4.148	0.000
Age (GndF)	0.010	0.007	1.514	0.130
Emplodm	0.110	0.085	1.300	0.194
PTUSER	0.169	0.096	1.760	0.078
GendFem	0.044	0.097	0.452	0.651
knowMaS	0.065	0.093	0.700	0.484
Carown	-0.071	0.085	-0.834	0.404



MODEL RESULT

Barranquilla



	Estimate	Std.Err	z-value	P(> z)
Perform	~			
Effort	0.785	0.072	10.917	0.000
housesz_Eldrly	-0.162	0.069	-2.345	0.019
Motoown	-0.191	0.110	-1.740	0.082
SusAwr	~			
MSStress	0.072	0.014	5.242	0.000
income_lowdum	-0.148	0.103	-1.437	0.151
Hedonic	~			
Undergraddum	-0.368	0.171	-2.154	0.031
Motoown	-0.193	0.117	-1.648	0.099
MSStress	0.116	0.017	6.667	0.000
Creditcard	0.331	0.120	2.760	0.006
Trust	~			
MSStress	0.048	0.015	3.286	0.001
knowMaaS	0.346	0.112	3.103	0.002
Creditcard	0.199	0.119	1.677	0.094
Effort	~			
Age	-0.007	0.005	-1.459	0.145
Pets	0.291	0.106	2.739	0.006
Hedonic	0.654	0.096	6.789	0.000
Socinf	~			
income_highdum	0.469	0.250	1.879	0.060
Trust	0.480	0.059	8.139	0.000
MSStress	0.027	0.010	2.814	0.005
IntUse	~			
Perform	0.287	0.059	4.882	0.000
Socinf	0.504	0.090	5.614	0.000
Hedonic	0.190	0.085	2.218	0.027
MSStress	0.064	0.016	3.884	0.000
knowMaaS	0.160	0.121	1.321	0.186
Emplodum	-0.307	0.151	-2.028	0.043
Fit				
RMSEA	0.0041			
TLI	0.995			
CFI	0.991			

Discussion

- Knowing the concept was significant for intention to use in all cities.
- Latent variables influence vary among the cities.
- The older the women the more interested in using MaaS, consistent for Bogotá and Manila
- Personalized bundles may play a crucial role in MaaS adoption.
- Pet friendliness seems to be important for mobility services also.

»»» *INCOME IS NOT A STRONG
PREDICTOR* (at this
stage)*

Conclusion



- Even among global south cities, there are clear differences in user preferences.
- MaaS systems should be tailored considering the current regime and landscape of each city.
- Explaining the concept may increase the intention to use it.
- Home delivery services are worth to be further assessed as a feature of mobility bundles.
- Commuting stress was significant in all three cities, meaning MaaS could be a good solution in cities with highly stressed commuters.
- In the end, performance expectancy was significant in all the cities, meaning in the end people intention to use is usually related to convenience, above other latent variables like the hedonic motivation or sustainability awareness



Questions?

Mauricio.Orozco@tecnico.ulisboa.pt

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Let's connect!





THANK
YOU!