

Appendix to the manuscript

Probabilistic Spatial Modelling of Travel Mode Choices with Synthetic Instances

No Author Given

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1 Decision Tree

Figure 1 presents a simplified decision tree model for the classification of Travel Mode Choice (TMC). The Decision Tree model optimised based on grid search performed with `caret` achieves an accuracy of 56.05% ($\kappa=0.2984$).

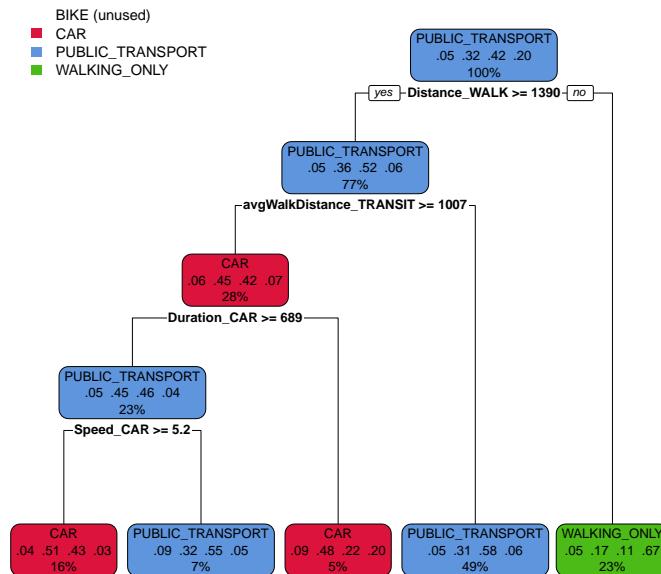


Fig. 1: A sample decision tree classification model for TMC, constructed using the `rpart` library with $cp = 0.01$.

2 Probabilistic Spatial Modelling of Travel Mode

The figures presented in this section demonstrate the probabilities associated with the selection of various transport modes, as estimated by the decision tree and logistic regression models. The figures presented illustrate the aggregated probability values calculated using the minimum (`min`), maximum (`max`), median (`median`), and average (`avg`) functions for four distinct modes of transportation: public transport (PT), car (CAR), walking only (WALK) and bike (BIKE).

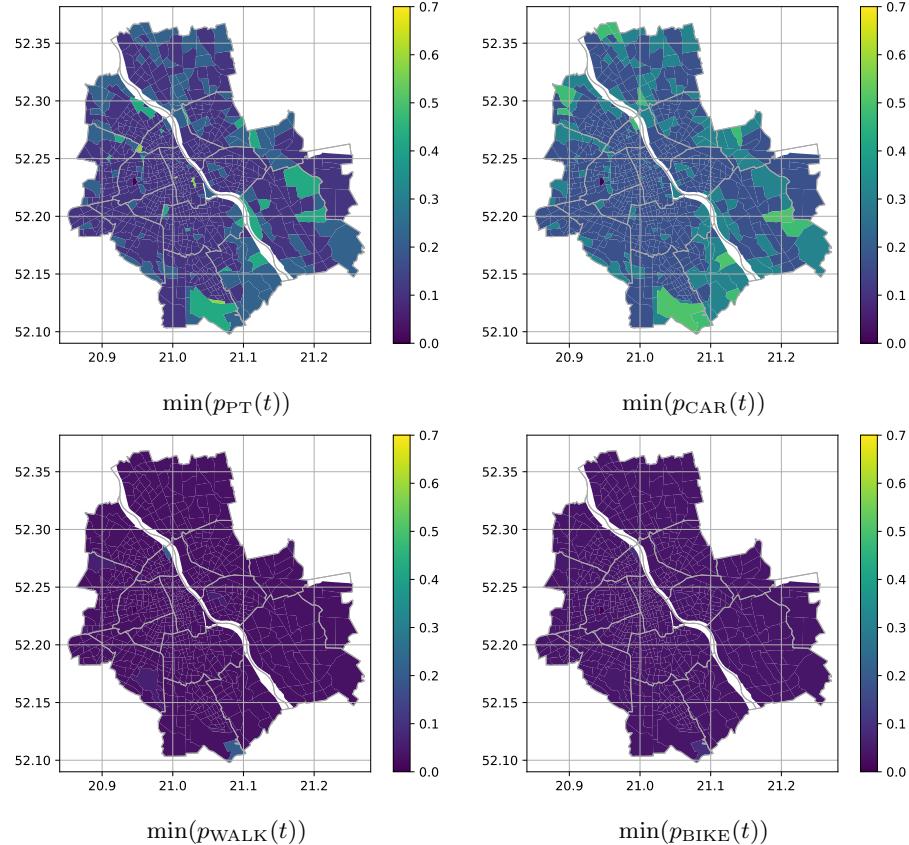


Fig. 2: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the decision tree model and aggregated by the `min` function.

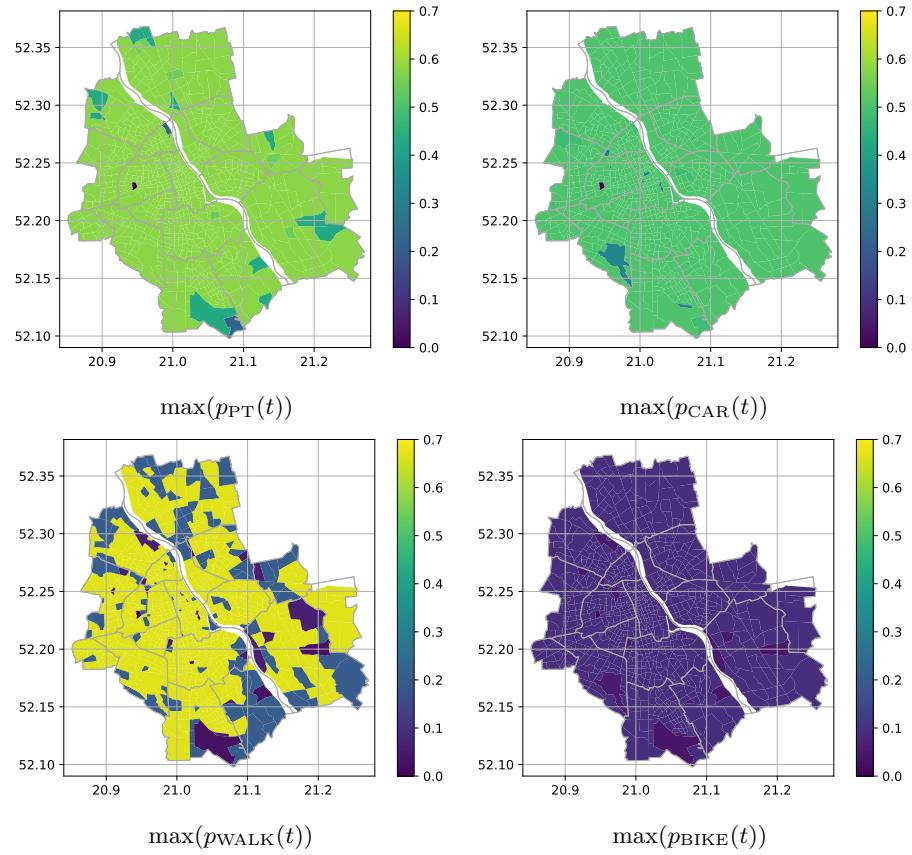


Fig. 3: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the decision tree model and aggregated by the `max` function.

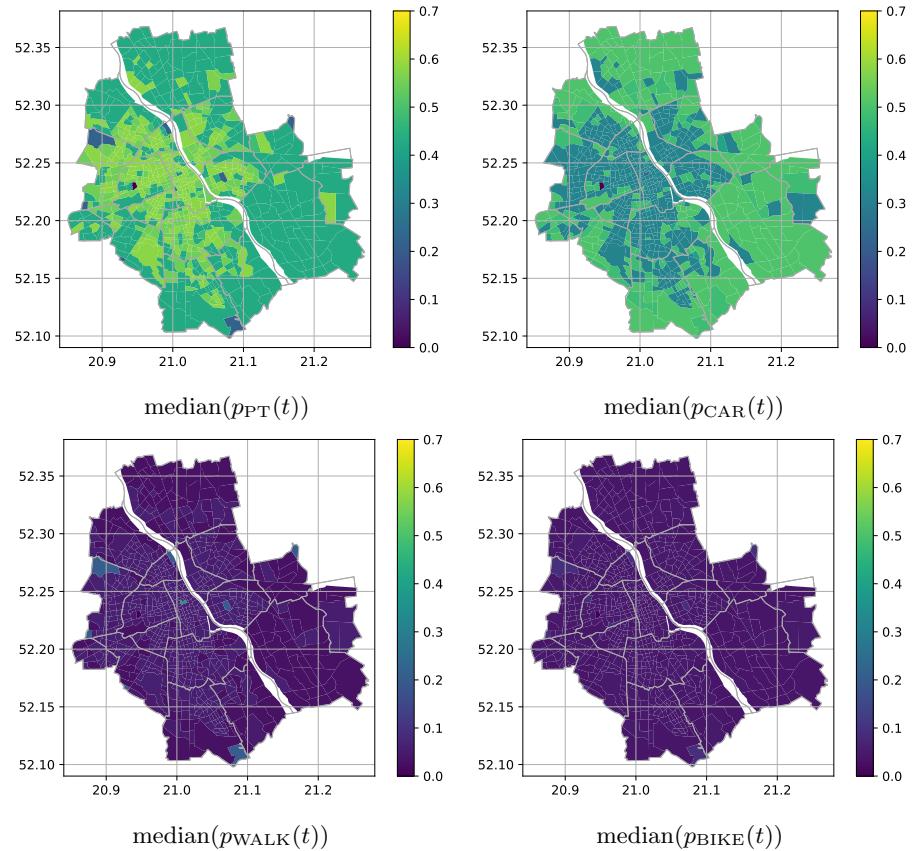


Fig. 4: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the decision tree model and aggregated by the `median` function.

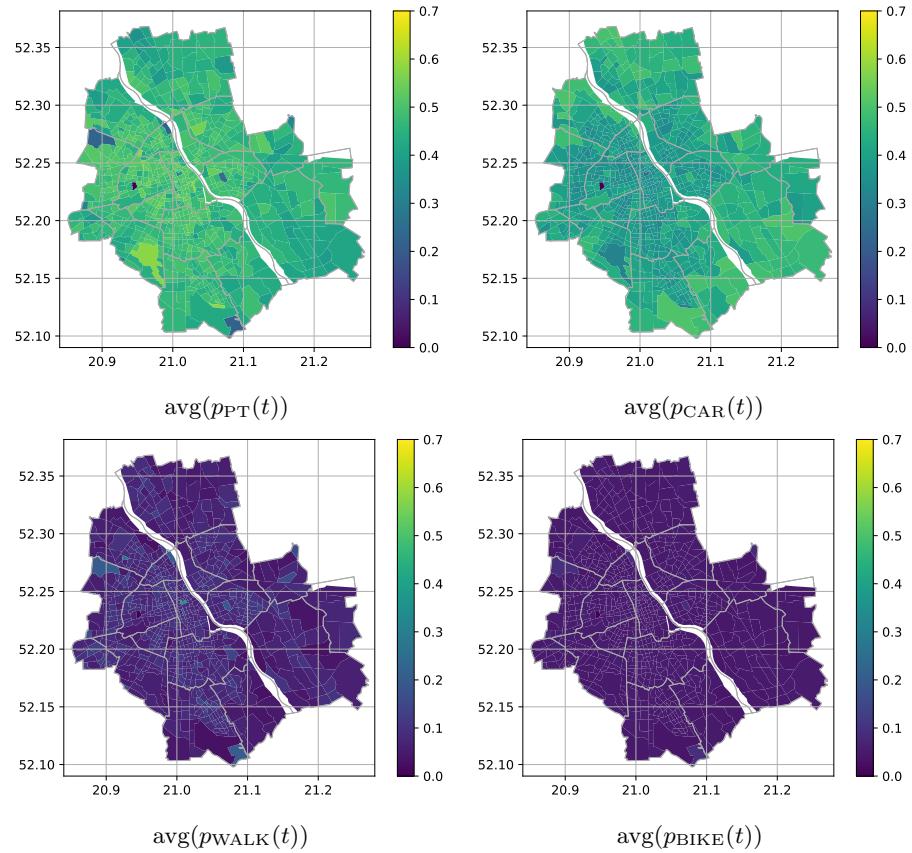


Fig. 5: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the decision tree model and aggregated by the `avg` function.

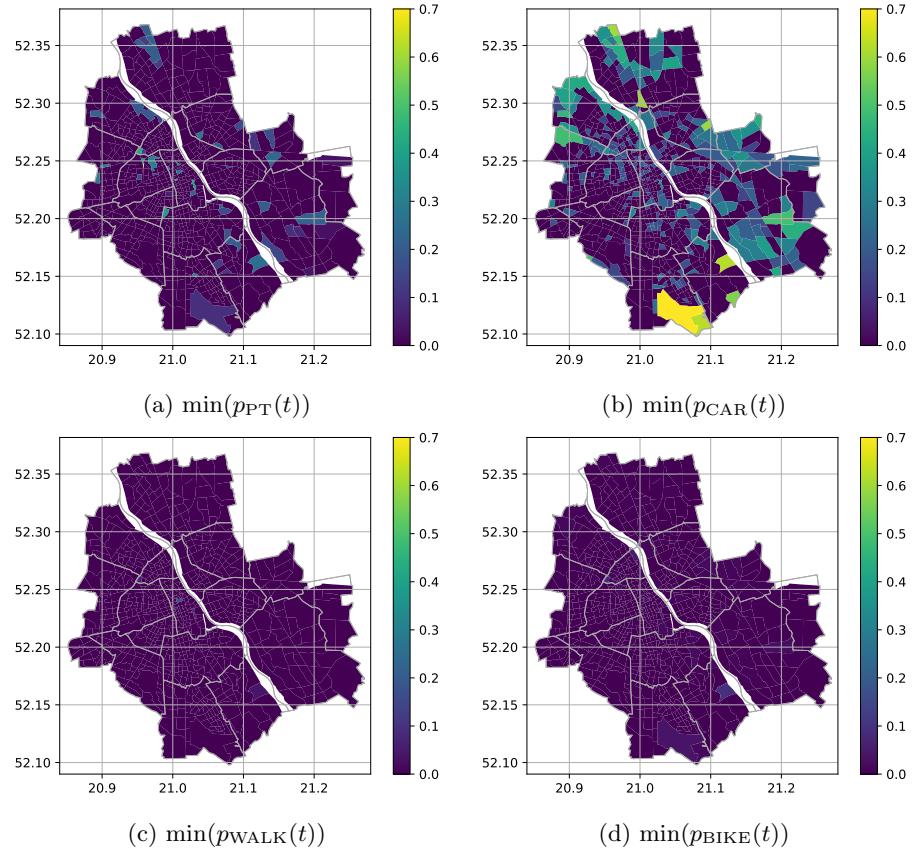


Fig. 6: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the logistic regression model and aggregated by the `min` function.

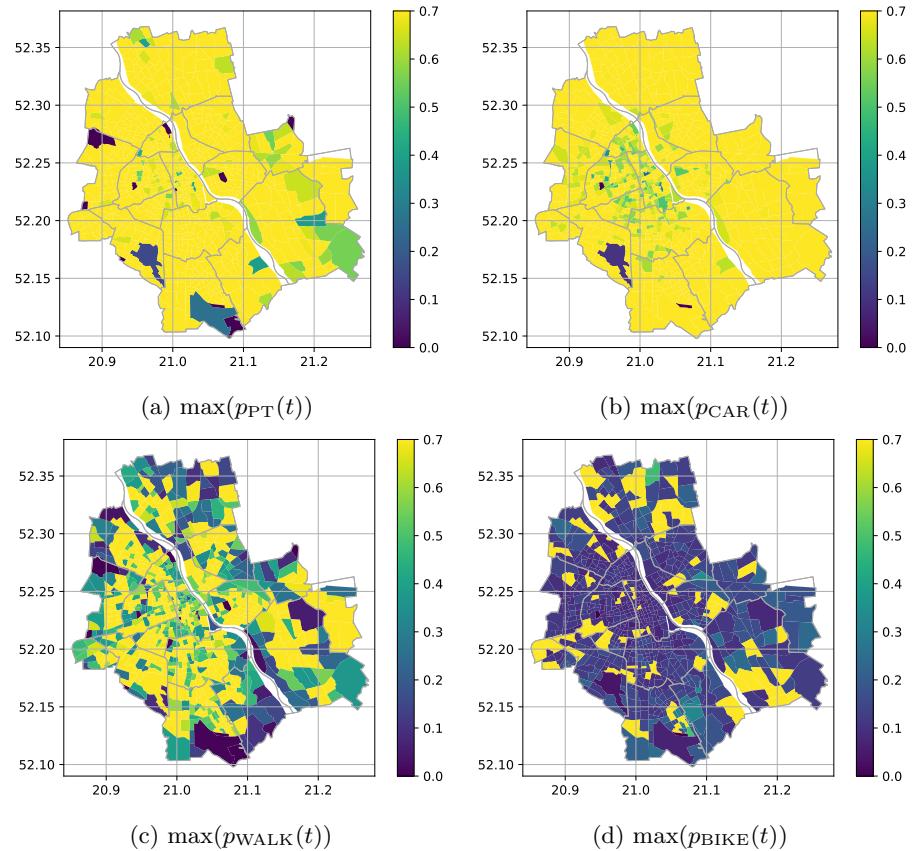


Fig. 7: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the logistic regression model and aggregated by the `max` function.

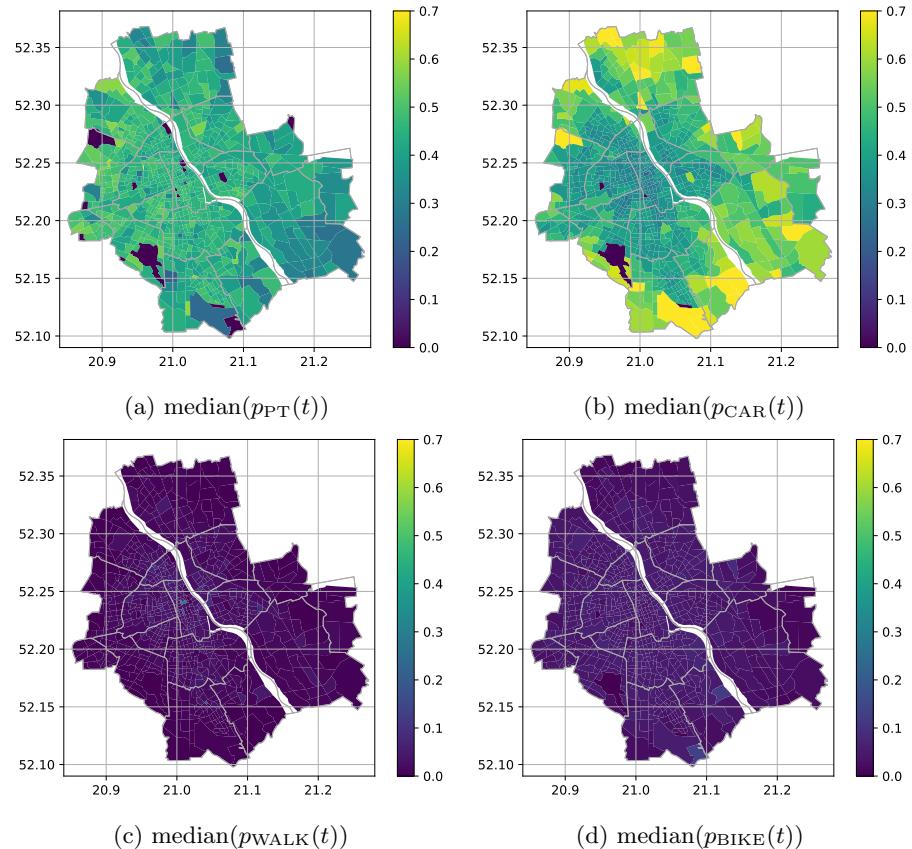


Fig. 8: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the logistic regression model and aggregated by the `median` function.

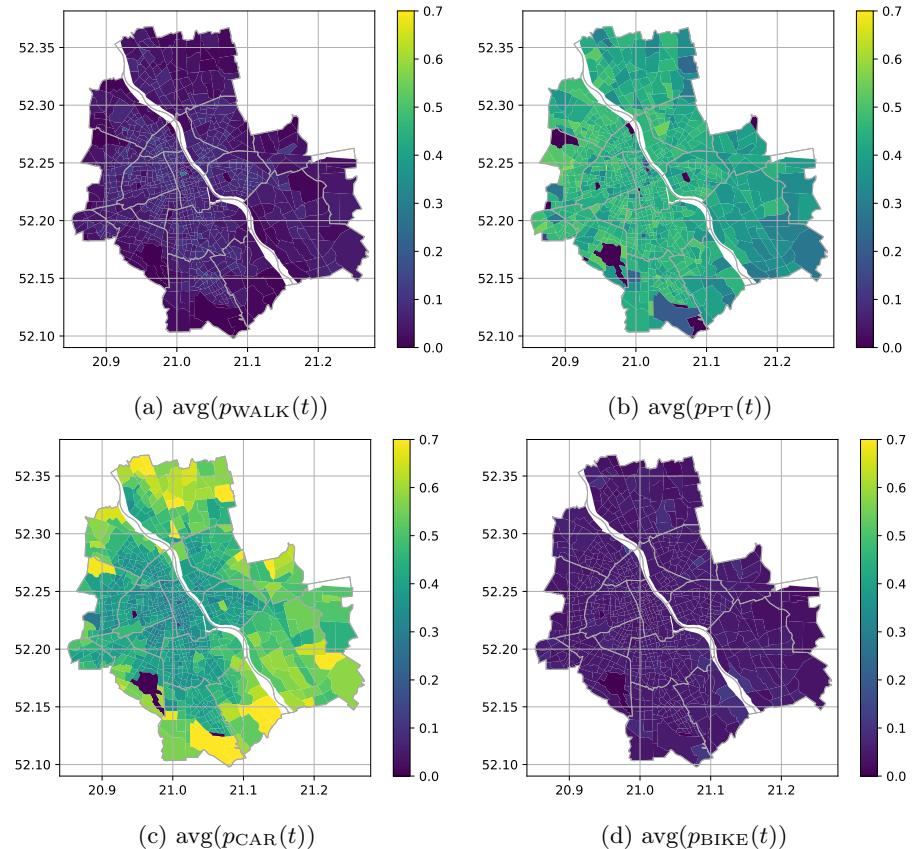


Fig. 9: The aggregated probability of choosing a travel mode per city zone. Probability values derived from the logistic regression model and aggregated by the `avg` function.