Modeling bus bunching using massive location and fare collection data

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© 2018, © 2018 Taylor & Francis Group, LLC.Bus bunching is a well-known phenomenon for operators, users and regulators of high-frequency bus services. Bus operations are usually affected by increasing differences in the time intervals (headways) between consecutive buses. The effect of this variability is that buses tend to group into bunches of two or more, which severely affects the quality of service and the operational efficiency. The aim of this paper is to analyze which factors are associated to the phenomenon, using massive data from high-frequency services available in Santiago (Chile) and common-route services in Gatineau (Canada). The data is obtained from the bus GPS and AFC systems and are processed to obtain headways between buses. Using data from one week, we develop models to explain the variation of the continuous and discrete indicators of bus bunching as a function of variables related to the operation, variables related to the demand structure, and variables related