There are several privacy concerns regarding the usage of apps on mobile phones as the platform's portability and highly tailored services offer new avenues for privacy breaches. In such an environment, understanding and predicting user privacy behavior has become very important if one is to design software which respects the privacy concerns of users. Researchers have carried out various studies to quantify user perceptions and concerns and user characteristics which may predict privacy behavior. Even though research exists regarding factors which affect user privacy behavior, there is gap in the literature when it comes to correlating these factors to objectively collected data from user devices. We designed an Android application which administered surveys to collect various perceived measures, and to scrape past behavioral data from the phone. Our goal was to discover variables which help in predicting user location sharing decisions by correlating what we collected from surveys with the user's decision to share their location with our study application. We carried out logistic regression analysis with multiple measured variables and found that purely perceived measures and past behavioral data was a poor predictor of user location sharing decisions. Finally, we discovered that a variable measuring user feelings regarding their past location sharing behavior helped to strengthen prediction models. Our work attempts to bridge computational and social science approaches to mobile privacy and narrows down the important factors which may predict a user's location sharing behavior.