Mobile App Marketplace Analysis

Jacob Braun, Rahul Agarwal, Ravi Hasyagar, Sumit Kumar, Yufan Li

Business Problem

Our client is a software developer considering launching a mobile app and hopes to understand the expansive global app marketplace better. By analyzing various data points such as global region, app stores, genre/category, and more, we plan to provide insights and recommendations to help our client successfully launch their application.

How do we measure success?

Two key metrics of success in the mobile app space are customer engagement and customer satisfaction. If customers are satisfied with an app, they are more likely to keep using it. Additionally, new potential users are more likely to download an app if they see that many other users have positive experiences with the app. There are various ways to monetize an app, including in-app ads, in-app purchases, and up-front costs, however they all require high customer engagement to be lucrative. As such, we will evaluate an app's success by its customer engagement and satisfaction.

To measure how apps perform in this framework, **we created our own metric, *Success Measure*, that equally weighs an app's number of ratings with the app's average rating and gives it a score between 0 and 1, with a value of 1 being the best**. We are using the app's number of ratings as a proxy for downloads and engagement since many ratings necessitate that many users have interacted with the app. However, a large number of interactions will not meaningfully help a developer if they are all negative interactions, driving customers away. For this reason, it is also essential to account for how much customers enjoy using each app, as represented by the app's average rating.

It is critical to balance the number of app interactions with customer satisfaction to successfully monetize an app as people continue using the app and attract new users. Therefore, we weighed these two components equally in our success measure. While we lose some detail about the absolute values of rating counts and average rating, our measure allows us to compare apps in a way that considers both key goals on an equal scale. This calculated rating metric, blending our proxies for customer engagement and customer satisfaction, will be used for analysis going forward.

Analysis

We begin our analysis assuming that the average ratings of apps across different regions and platforms are similar representations of the market as the apps are all rated on a standard scale of 1 to 5.

We start by looking at app type, free or paid, because we regard business models as the key to success for an application. Zooming in the free or paid applications, we did a statistical test to compare the success measure mean of two groups. The results advocate for the free models. In reality, from the user perspective, the free model removes the price barrier to allow people to try the application first, which greatly enhances user experience and flexibility. From a business perspective, under the condition of a large user base, businesses can leverage many ways to realize monetization.

Figure 1:

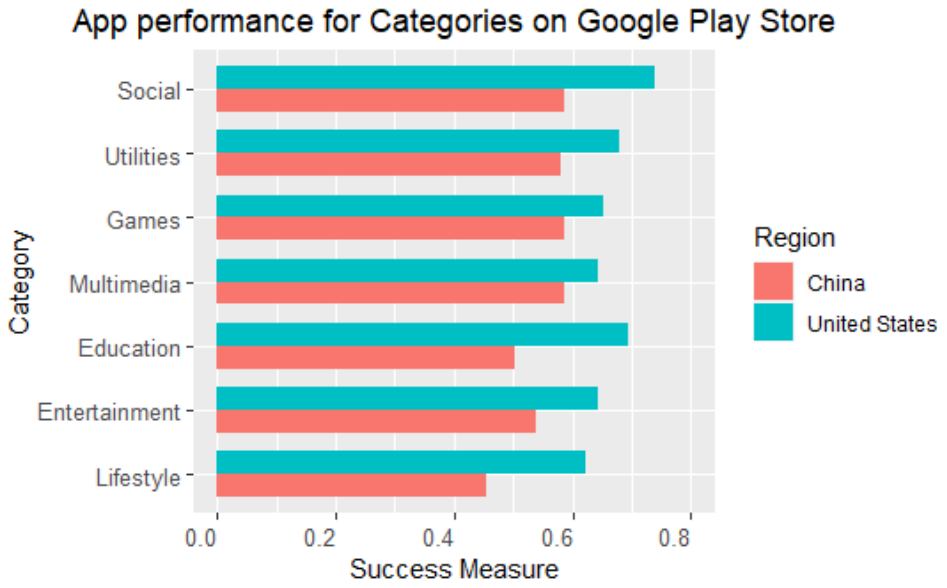
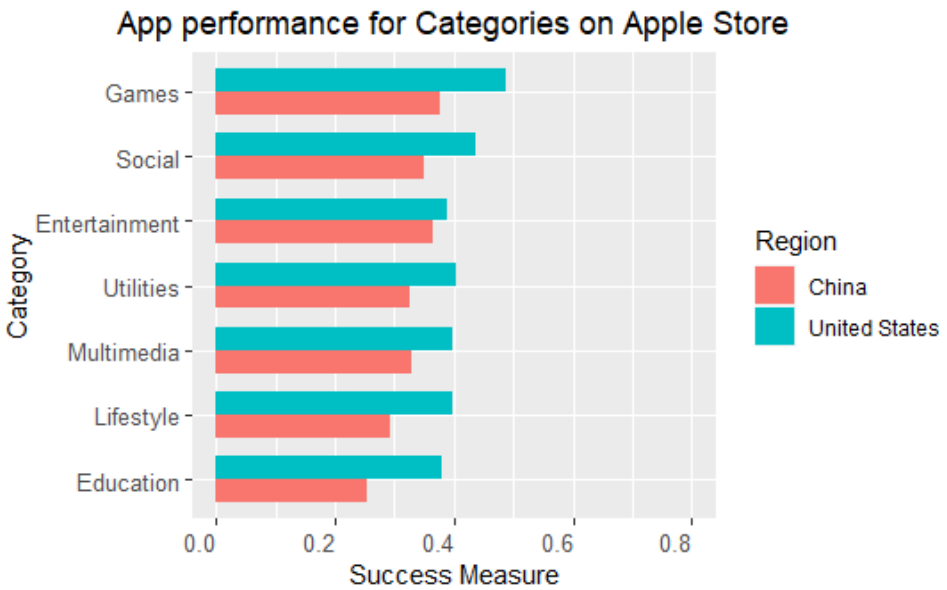


Figure 2:



Within the free applications, we compared the success measure of smartphones with tablets. After doing statistical analysis, we found that the average success measure of free smartphone apps is significantly higher than that of free tablet apps. Therefore, we can conclude that creating a free app for a smartphone instead of a tablet contributes to higher performance on the success measure.

We also narrowed down our research to Google Play and Apple app stores based on the available data as we have very few data points for Amazon. Looking at Figure 1 and Figure 2, we can see that the success metrics for the Google Play Store are higher than the ones for the Apple App Store in each category. Success metric numbers indicate that launching a free application on the Google Play store has a favorable chance of having a huge user base. This hypothesis was confirmed by performing statistical testing where we compared the means of success metric in both app stores and found them to be significantly different.

After these initial analyses, we directed our research towards free smartphone apps in the Google Play store since we found this to be the dominant market. Figure 1 demonstrates that the US outperforms China by success measure for all app categories. Notably, the Education category scores 40% better in the US than in China on Google Play. Social and Lifestyle categories also suggest a similar pattern. For this reason, we will focus our analysis on the US. Social apps in the US show the highest overall success measure. However, that category is saturated with prominent players such as Facebook, Instagram, Snapchat, and Twitter, so it would likely prove difficult to penetrate. Instead, we will focus our analyses on the second-highest category by success measure, education, since it is a more viable market for a new app.

Further drilling down to the Education category in the US Google Play store, we analyzed monetization factors and discerned that about 60% of these applications have in-app advertisements. This proportion indicates that Education category applications with in-app advertisements are the most successful applications in the US on the Google Play store platform.

Recommendations and Next Steps

After drilling down through various attributes and analyzing the best success measure outcomes, **we recommend that our client creates a free smartphone education app in the US Google Play Store with in-app ads as a source of revenue**. By evaluating app performance with our success measure, blending rating counts and average ratings as proxies for customer engagement and customer satisfaction, we found that this combination of application attributes will drive success for our client. In further analysis iterations, we would like to collect more detailed revenue data on the existing apps in the market to dive deeper into which monetization option is the most successful. We can then make better recommendations on in-app ads, in-app purchases, or up-front costs in each app category.