Objective: Use Facebook Ads to develop representative samples.

What is [Facebook Ads]((https:/www.facebook.com/business/ads%20))? : Are campaigns to advertise products in Facebook. It allows to publish campaigns and to track their performance with easy to read reports. The socio-demographic targets of the campaigns can be defined (location, age range, sex, language, level of education, ethnicity). It is also possible to define platform to deploy the messages (Facebook, Instagram, Messenger)

# Approach 1

**From:** [**Quota sampling using Facebook advertisements**](https://iomint.sharepoint.com/sites/GMDAC/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FGMDAC%2FShared%20Documents%2FBerlinOffice%2F10%5FPROJECTS%2FData%20%26%20Impact%20Analytics%2FProjects%2FIGCT%20Kosovo%2FPhase%20II%2Fcontent%2Fliterature%2Ffacebook%20quotas%2Epdf&parent=%2Fsites%2FGMDAC%2FShared%20Documents%2FBerlinOffice%2F10%5FPROJECTS%2FData%20%26%20Impact%20Analytics%2FProjects%2FIGCT%20Kosovo%2FPhase%20II%2Fcontent%2Fliterature&p=true&wdLOR=c498D9B52%2DF927%2D4550%2DBC56%2D765A00F74CB0&ct=1634640575842&or=Outlook-Body&cid=FE4952C1-4586-496A-906D-E8A52A78B5DB&originalPath=aHR0cHM6Ly9pb21pbnQuc2hhcmVwb2ludC5jb20vOmI6L3MvR01EQUMvRVluX29JU0ZYWmhDbFB1Yl9vNjI0ZVFCek9ETWExeGdKWFo0X2wtbXcxcUh3Zz9ydGltZT01QU5vTGU2UzJVZw)

Using Facebook-sampled survey they got similar results than national representative survey using identical questions. The findings suggest that using Facebook to recruit respondents is a viable option for researchers wishing to approximate population-level public opinion.

* Respondents were recruited through Facebook Ads,
* 2,000 were sampled at about $4 USD response (Total of USD 8,000)
* The authors developed a platform-specific quota sampling technique that uses Facebook Marketing API to semi-automate a quota-sampling process and crated an [R package](https://github.com/13bzhang/fbsample).
* In their study, 544 strata were generated. Based on demographic characteristics (gender, age group, race, level of education, and census regions). They chose these because crosstabs containing frequencies conditional on these demographics were available through the US census.
* They assigned and advertising budget to each stratum according to proportional allocation of the strata: greater budget to strata that contain a very small sub-population because it is more difficult to recruit from small sub-populations (higher budget to generate the minimum number of responses).
* Their ads informed respondents that by taking the survey they could see how their views compared to other Americans, no rewards were given. To maximize viewership, the ad was promoted on all Facebook platforms expect Instagram. Moreover, they removed ads for strata whose quotas had been filled to allow increasing the budget of other stratas without wasting the budget.
* They were able to fill 218 strata, and partially filled 61 strata, and failed to recruit anyone for 157 strata. 2,432 respondents in total.
* Results were similar to the panel survey even without weighting.
* To make both surveys more nationally representative, they used inverse probability weighting to weight each sample using the Current Population Survey (CPS). Then they used a logistic regression (propensity score matching) to estimate the probability of being selected (covariates: gender, age group, level of education, race, region, urban/rural, etc.). The final weights are the inverse of the estimated probabilities normalized such that the sum of each sample’s weights equals the sample’s size.

Methodology:

* To avoid optimization of the advertisement (optimize for clicks), researchers must target a diversity demographic stratum.
* This method uses the Facebook Marketing API to quota sample many demographically diverse strata simultaneously.
* Using this approach, the model assumes that, conditional on strata and observable characteristics, each person in the population has a non-zero probability of taking the survey.
* The Facebook Marketing API allows researchers to write code that target several thousand highly specific demographic groups at once (to avoid “homogenization”).

**Design Details:**

* The target population were residents of US 18 years or older, IPs outside UD were rejected.
* To construct the stratas, the combination of nine census regions, gender, four education levels, four racial groups, and two age groups were used to construct 576 posible strata.

Table 1. Demographic caracteristics used to generate Strata

|  |  |
| --- | --- |
| Categories |  |
| Regions | US regions |
| Gender | Male, female |
| Race | Non-Hispanic white, non-hispanic black, Hispanic, non-hispanic, oher |
| Education | Less than high school, high school graduate, college degree, higher |
| Age-group | 18-34, 35+ |

* The budgets were allocated according to proportional allocation gen fixed total budget of 10,000 USD.
* They set up a program to automatically shut down the ad once the quoate for a stratum has been filled.

What is my understanding on how to do it:

1. Get census data of the country where we are conducting the research
2. Define the demographic characteristics of our strata
3. Tabulate the population size of each group
4. Determine the quota (sample size) of each strata using a simple sample size calculator.
5. Allocate a budget for each strata for the campaign
6. Run the campaign for each strata and stop when the quota is filled .

The R package:

1. Allows to specify which demographic groups to target
2. Wraps [fbRads](https://github.com/daroczig/fbRads) to create ads in batches and upload them via the Facebook Marketplace API

* For quota sampling, each sampling project is a campaign
* Targeting of individual strata occurs at the Ad set level. For each Ad set, you input the demographics of the strata and how much you are willing to spend to advertise to that strata. Finally, for each Ad set, you create an Ad that uses an Ad Creative (ad text, image, and survey link) to recruit respondents.

Set up the R package.

* Set up a [Facebook Page](https://www.facebook.com/business/learn/set-up-facebook-page) so you can create and manage ads.
* Create a Facebook App and authorize it to manage the ads of your Facebook Page. Follow the directions outlined in [fbRads](https://github.com/cardcorp/fbRads/blob/master/README.md) to crate your Facebook App and connect with the OAuth token.
* Draft [a post](https://www.facebook.com/business/learn/facebook-page-create-posts) for your Facebook Page that you will use as your [Ad Creative](https://developers.facebook.com/docs/marketing-api/reference/ad-creative). The post should contain a catchy image, a short description of your survey, and a link to your survey. Do not publish the post but instead save it as a draft to be published later as part of your ad.
* Use fb\_campaign in fbRads to create a [Campaign](https://developers.facebook.com/docs/marketing-api/reference/ad-campaign-group) for your quota sample. All ads will be a part of this campaign.
* Use create\_target in fbsample to create [demographic targets](https://www.facebook.com/business/a/online-sales/ad-targeting-details) for each strata in your quota sample. In addition to each strata's demographics information, you should also provide information about how much you plan to spend on each strata.
* Use batch\_strata\_ads in fbsample to create ads for each strata in your quota sample. For each strata, the function creates an Ad set and an Ad.

Code used for analysis:

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/XTXS4P>

# Approach 2

From: [Using Facebook and Instagram to recruit web survey participants](https://surveyinsights.org/?p=13558)

This paper provides a step-by-step guide on how to recruit web-survey participants via ads on Facebook and Instagram. They used this approach in a research project to recruit participants of a LGBTQ online survey.

* Their recruiting strategy was to show 5 different set of ads to attract different population groups: rainbow families, females, males, transgender, general population. They used different images and text to each campaign.
* The majority of respondents were self-identified as LGB and comparison with other studies, this was heavily biased towards: younger, more educated, etc.
* They did not correct this bias but they acknowledge “ In order to compensate for these biases, appropriate adjustment strategies must be developed and applied in future work”

My understanding of this paper:

It is interesting as a guide to set-up a campaign that effectively attracts respondents but it is not useful as a guide to design an appropriate sample strategy.