Analysis of H2B Visa Applications

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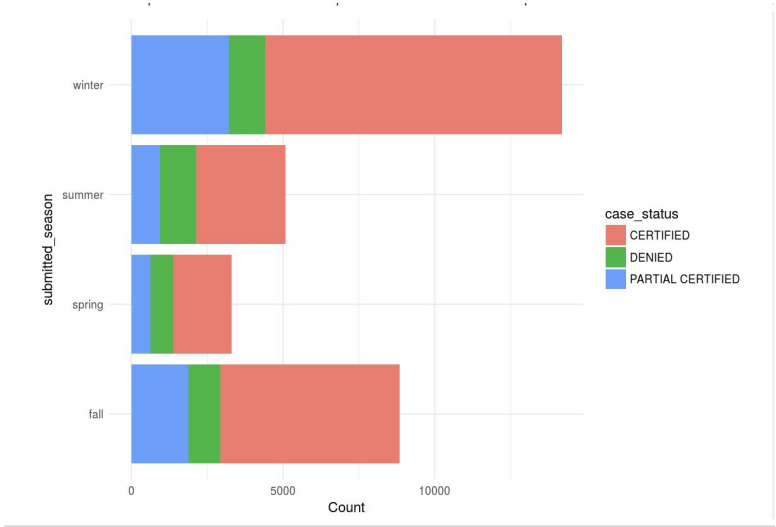
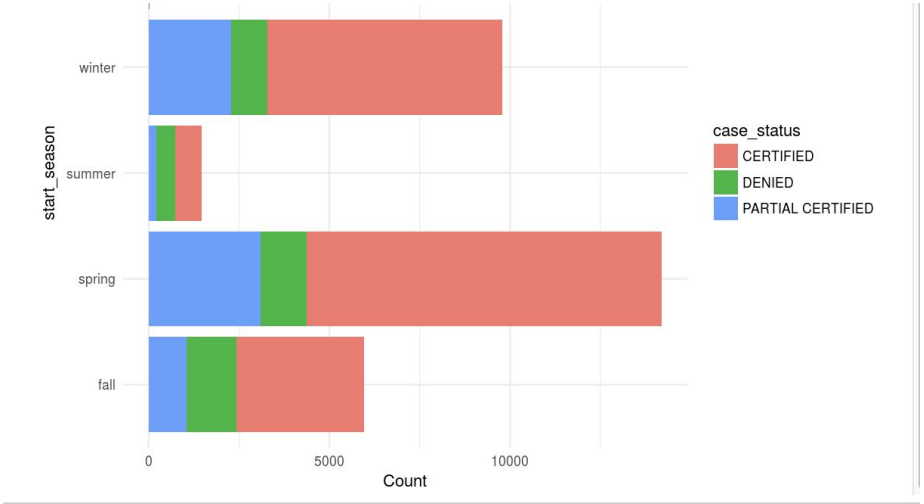
Background

- H2-B visa - temporary work visa for foreign workers
- H2-B visas are capped at 66,000 per fiscal year
- This project aims to find out what factors make applicants more likely to get successfully obtain H2-B visas
  - Job category
  - Wage
  - Season
  - Region
  - Number of workers

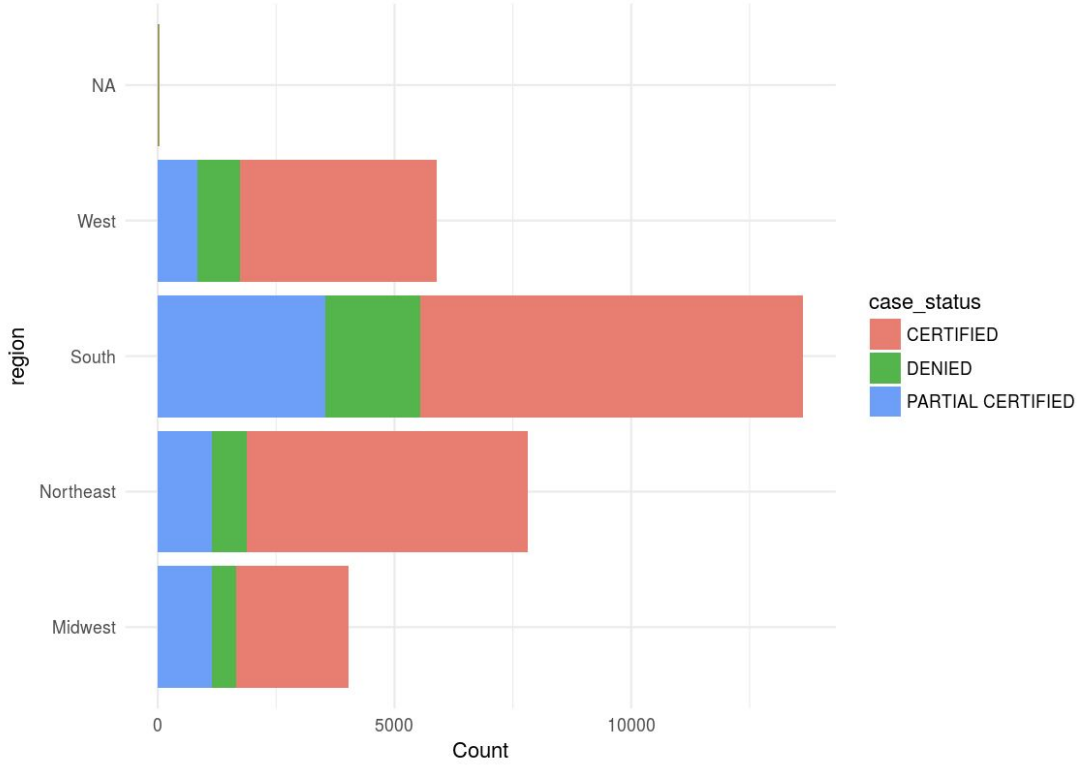
Shiny & Visualizations

Difference in season between visa submit date and work start date

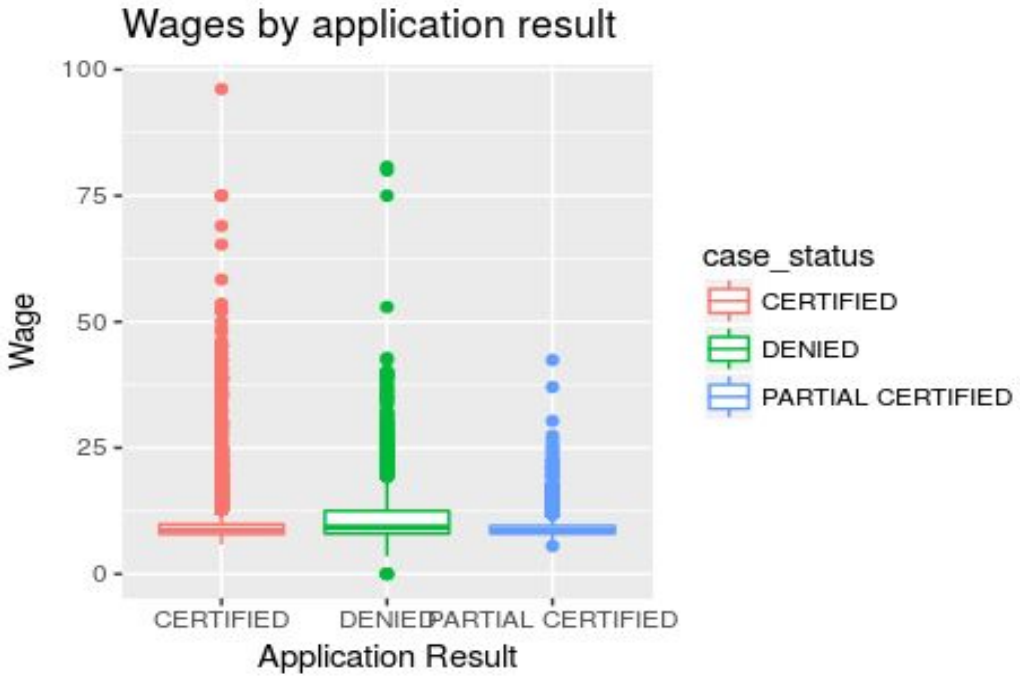




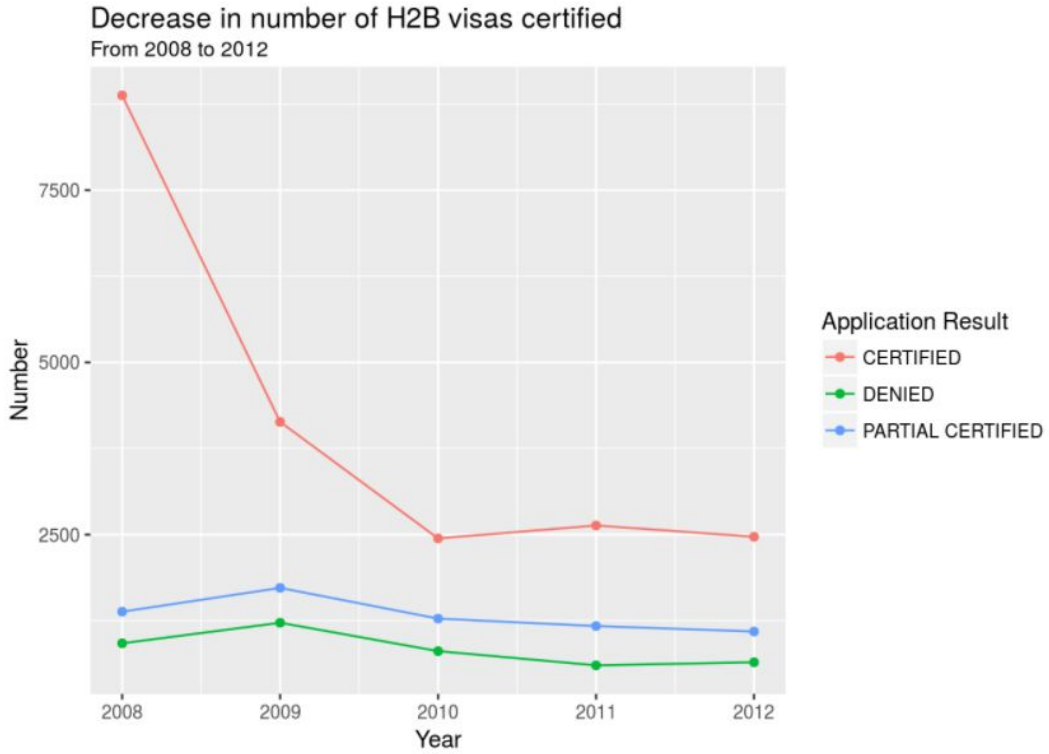
Cases by Region



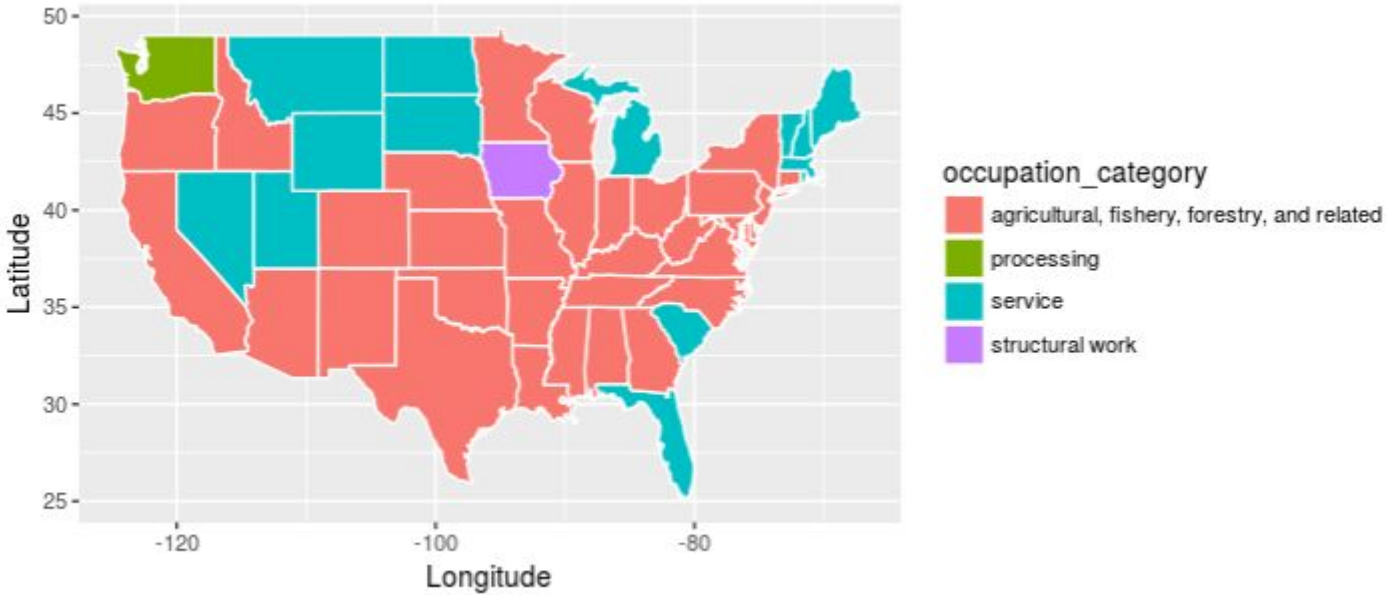
Wage by application status



Application results by year



Most popular occupation by state



Backwards Selection

- Number of workers requested not a significant variable

```
## Start:  AIC=-23509.82
## prop_workers_certified ~ occupation_category + prevailing_wage +
##     submitted_season + region + nbur_workers_requested
##
##                         Df Sum of Sq    RSS    AIC
## - nbur_workers_requested  1     0.000 1307.8 -23512
## <none>                                1307.8 -23510
## - prevailing_wage         1     2.308 1310.1 -23492
## - region                  3     4.173 1312.0 -23481
## - submitted_season        3    20.312 1328.1 -23346
## - occupation_category     8    34.324 1342.2 -23240
##
## Step:  AIC=-23511.82
## prop_workers_certified ~ occupation_category + prevailing_wage +
##     submitted_season + region
##
##                       Df Sum of Sq    RSS    AIC
## <none>                             1307.8 -23512
## - prevailing_wage      1     2.310 1310.1 -23494
## - region               3     4.236 1312.1 -23482
## - submitted_season     3    20.316 1328.1 -23348
## - occupation_category  8    34.446 1342.3 -23241
```

Regression

- Most likely to be approved by occupation
  - Processing
  - Agricultural, fishery, forestry, and related
- Least likely:
  - Professional, technical, and managerial work

```
##
## Call:
## lm(formula = prop_workers_certified ~ occupation_category + prevailing_wage +
##     submitted_season + region, data = h2b)
##
## Coefficients:
##                                                (Intercept)
##                                                  8.094e-01
##                                  occupation_categorybenchwork
##                                                 -7.965e-02
##                          occupation_categoryclerical and sales
##                                                 -1.468e-01
##                              occupation_categorymachine trades
##                                                 -1.311e-01
##                               occupation_categorymiscellaneous
##                                                 -5.908e-02
##                                occupation_categoryprocessing
##                                                  4.236e-03
## occupation_categoryprofessional, technical, and managerial
##                                                 -1.746e-01
##                                   occupation_categoryservice
##                                                 -4.340e-02
##                             occupation_categorystructural work
##                                                 -1.537e-01
##                                                prevailing_wage
##                                                 -5.535e-06
##                                      submitted_seasonspring
##                                                 -3.485e-02
##                                      submitted_seasonsummer
##                                                 -2.241e-02
##                                      submitted_seasonwinter
##                                                  6.885e-02
##                                             regionNortheast
##                                                  4.408e-02
##                                               regionSouth
##                                                  6.584e-03
##                                                regionWest
##                                                 -1.104e-02
```

Regression

Most likely to be approved by season

1. Winter
2. Fall
3. Summer
4. Spring

```
##
## Call:
## lm(formula = prop_workers_certified ~ occupation_category + prevailing_wage +
##     submitted_season + region, data = h2b)
##
## Coefficients:
##                                                (Intercept)
##                                                  8.094e-01
##                                occupation_categorybenchwork
##                                                 -7.965e-02
##                          occupation_categoryclerical and sales
##                                                 -1.468e-01
##                              occupation_categorymachine trades
##                                                 -1.311e-01
##                               occupation_categorymiscellaneous
##                                                 -5.908e-02
##                                  occupation_categoryprocessing
##                                                  4.236e-03
## occupation_categoryprofessional, technical, and managerial
##                                                 -1.746e-01
##                                    occupation_categoryservice
##                                                 -4.340e-02
##                               occupation_categorystructural work
##                                                 -1.537e-01
##                                               prevailing_wage
##                                                 -5.535e-06
##                                        submitted_seasonspring
##                                                 -3.485e-02
##                                        submitted_seasonsummer
##                                                 -2.241e-02
##                                        submitted_seasonwinter
##                                                  6.885e-02
##                                             regionNortheast
##                                                  4.408e-02
##                                                regionSouth
##                                                  6.584e-03
##                                                regionWest
##                                                 -1.104e-02
```

Regression

Most likely to be approved by region

1. Northeast
2. South
3. Midwest
4. West

```
##
## Call:
## lm(formula = prop_workers_certified ~ occupation_category + prevailing_wage +
##     submitted_season + region, data = h2b)
##
## Coefficients:
##                                                (Intercept)
##                                                  8.094e-01
##                                occupation_categorybenchwork
##                                                 -7.965e-02
##                          occupation_categoryclerical and sales
##                                                 -1.468e-01
##                              occupation_categorymachine trades
##                                                 -1.311e-01
##                               occupation_categorymiscellaneous
##                                                 -5.908e-02
##                                  occupation_categoryprocessing
##                                                  4.236e-03
## occupation_categoryprofessional, technical, and managerial
##                                                 -1.746e-01
##                                    occupation_categoryservice
##                                                 -4.340e-02
##                               occupation_categorystructural work
##                                                 -1.537e-01
##                                             prevailing_wage
##                                                 -5.535e-06
##                                       submitted_seasonspring
##                                                 -3.485e-02
##                                       submitted_seasonsummer
##                                                 -2.241e-02
##                                       submitted_seasonwinter
##                                                  6.885e-02
##                                             regionNortheast
##                                                  4.408e-02
##                                                regionSouth
##                                                  6.584e-03
##                                                regionWest
##                                                 -1.104e-02
```

Conclusion

- Occupation type, season, and region affect whether visas are approved
- Agriculture accounts for most visas
- Most visas start in Spring or Winter

Ways to expand on this work:

- Logistic regression of case status
- Further research into the economic and political factors that affect these visas