Project I: H1B Visa

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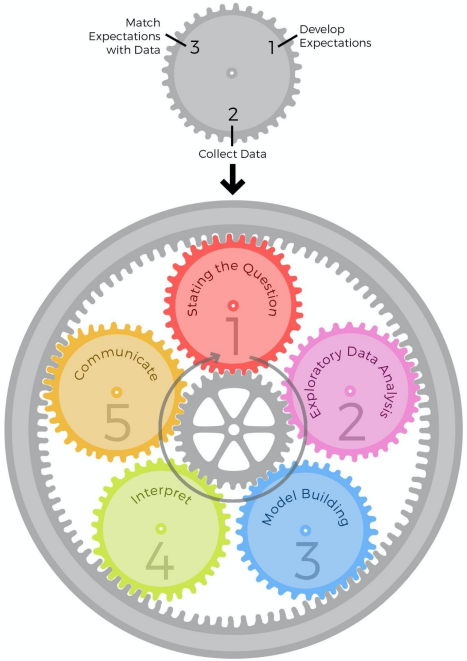
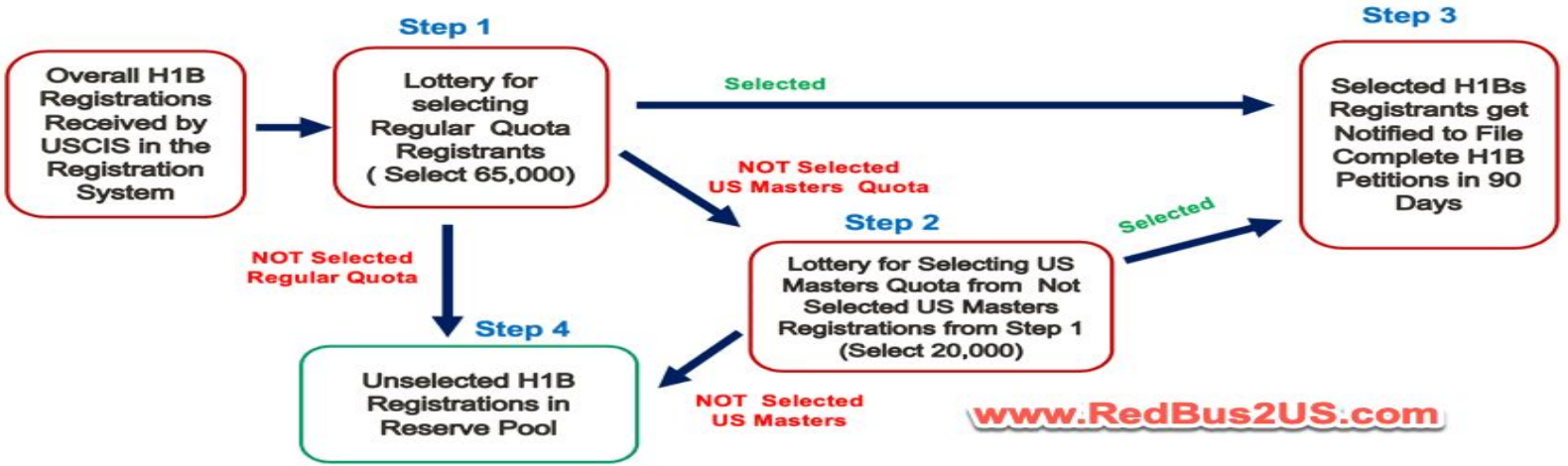

Match Expectations with Data
3
1
Develop Expectations
2
Collect Data
Stating the Question
1
Exploratory Data Analysis
2
Model Building
3
Interpret
4
Communicate
5

Overview

- **What key factors affect approval rate of H1B visa**
- **Introduction of H1B visa**
- **Data Summary**
- **Data Interpretation**
- **Communication**

Introduction of H1B Visa

- Visa for Temporary (Nonimmigrant) workers
- About 20 different types of temporary worker visa
- Average of half a 1,000,000 petitions for foreign workers each year
- 190,098 petitions for H1B visa in 2019
- 65,000 Regular cap and 20,000 Master's cap



Data Summary

- Where we get it:

  USCIS stands for U.S. Citizenship and Immigration Services

- What this data is about:

  CSV file, row, column, we will take a look together

- How we clean it:

  Although it is csv file, we still need to dig into the data to clean it

	Fiscal.Year <fctr>	Employer <fctr>	Initial.Approvals <int>	Initial.Denials <int>	Continuing.Approvals <int>	Continuing.Denials <int>	NAICS <fctr>	State <fctr>
1	2009	GREEN HOME INVESTMENT CORP	1	0	0	0	53	FL
2	2009	MEENAKSHI CORPORATION	3	0	1	0	54	NJ
3	2009	AVN TRADING COMPANY INC	0	0	1	0	99	NJ
4	2009	F & D ACADEMY INC DBA KUMON	1	0	0	0	61	NY
5	2009	ADVANCED INTL FREIGHT INC	1	0	0	0	48	NJ
6	2009	INTL INFO TEC TEAM INC	0	0	4	0	54	NJ

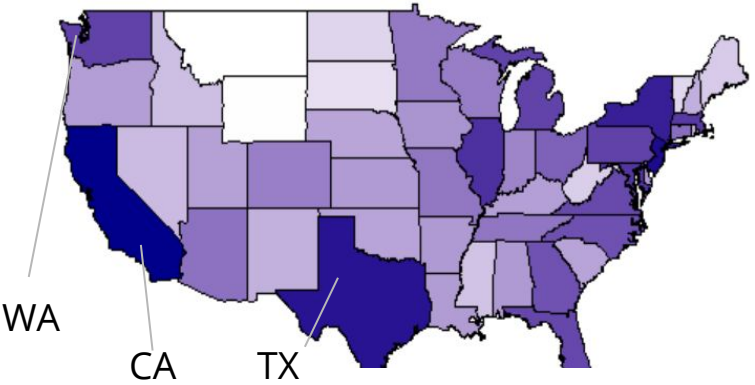
Questions:

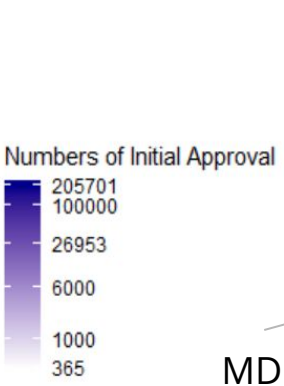
- How is approval rate associated with location of employer?
- How is approval rate associated with Industry(NAICS)?
- How is approval rate associated with Fiscal.Year?

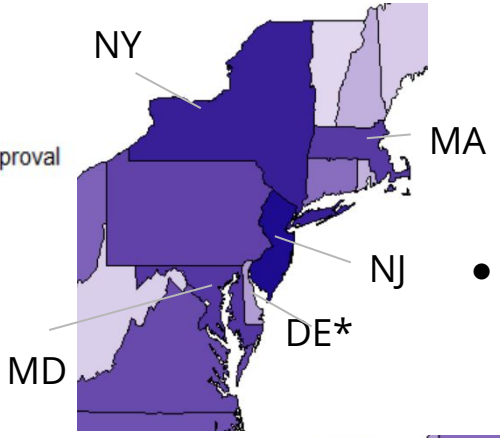
Location

Factor I - Location Vs. Initial Approvals

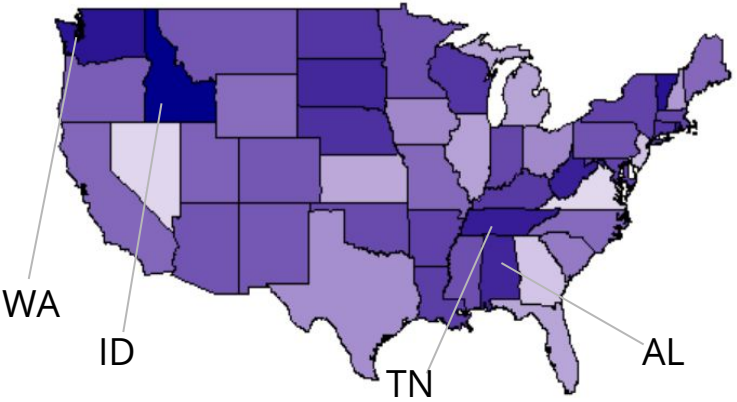
Map of Numbers of Initial Approvals in Each State

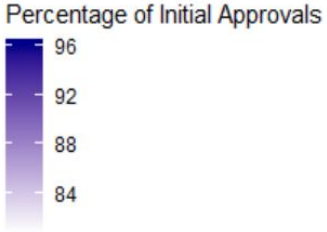


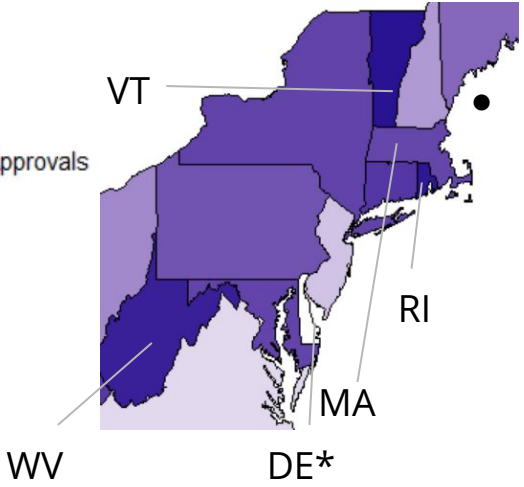




Map of Percentage of Initial Approvals in Each State

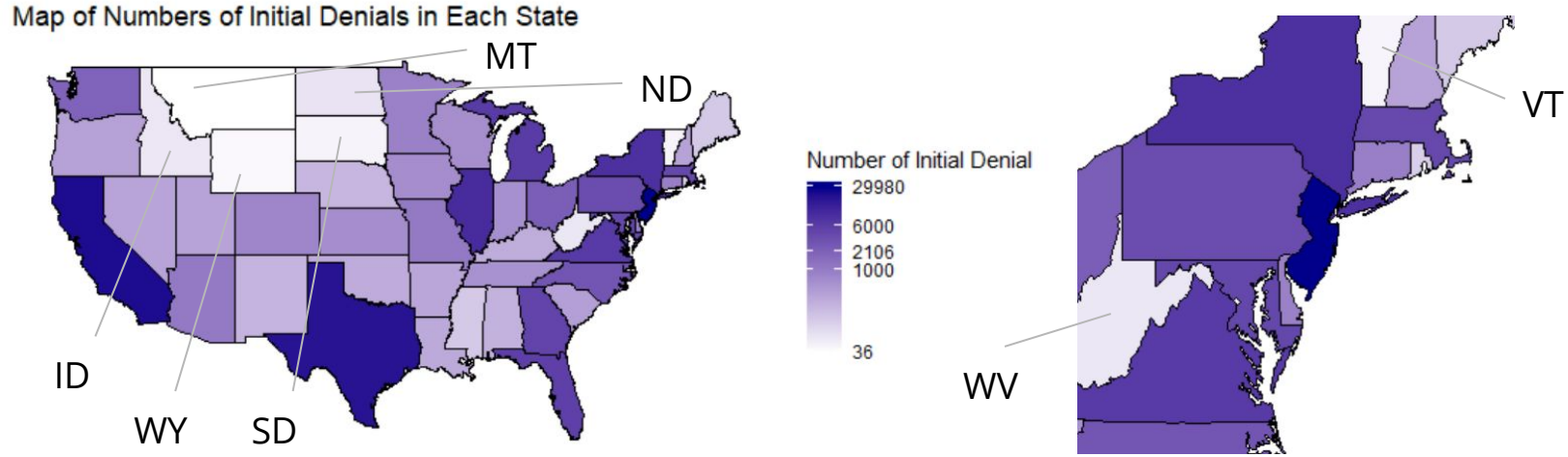


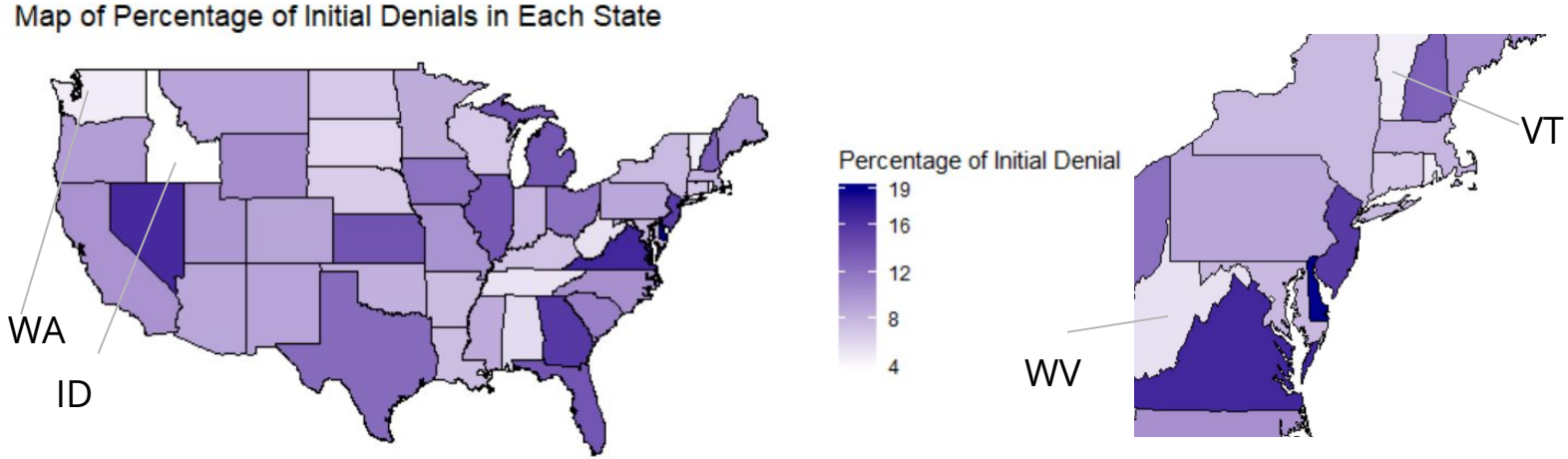




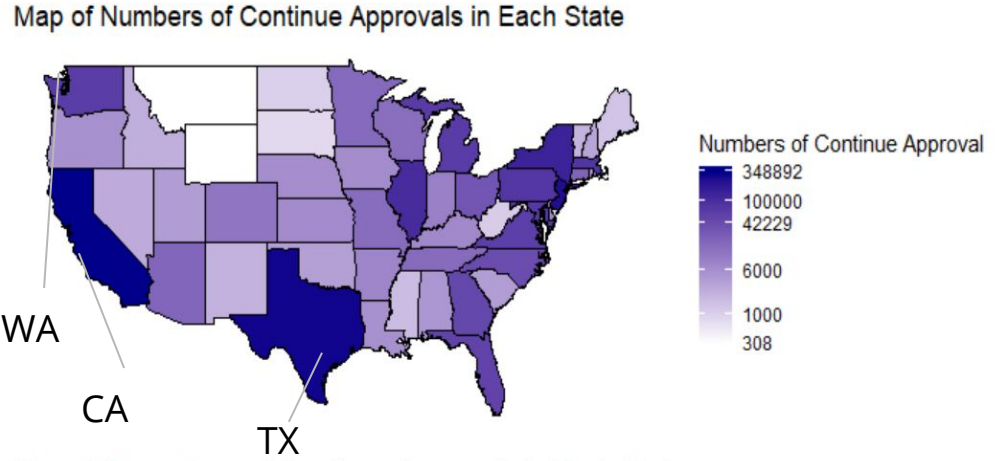
- CA, NJ, TX, NY and IL are the top five states that have large number of initial approvals
- ID, VT, WA, RI and TN are the top five states that have high percentage rate

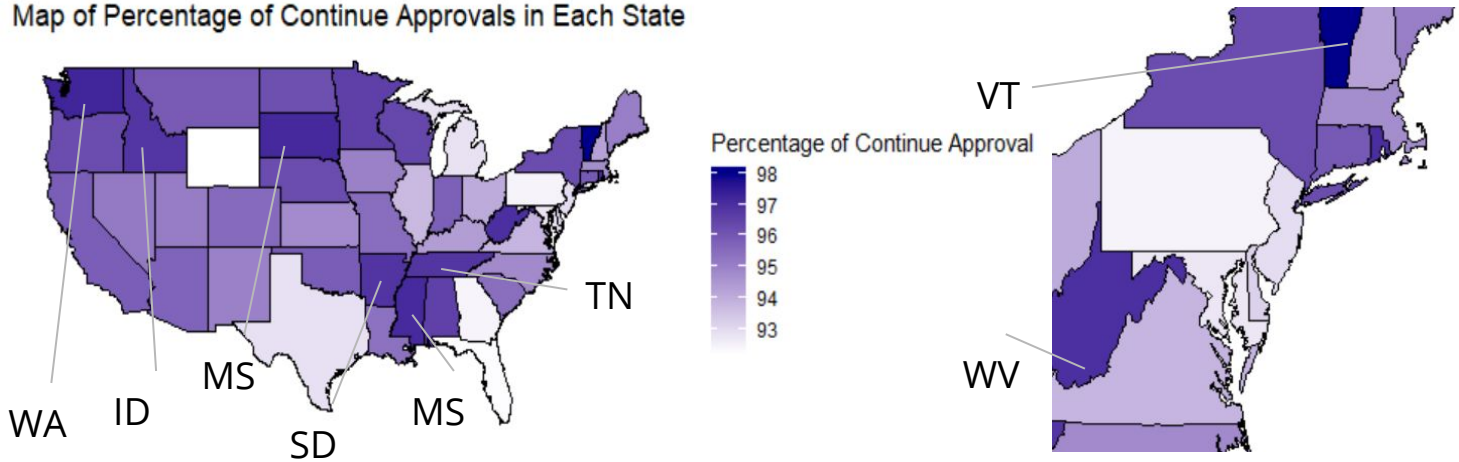
Factor I - Location Vs. Initial Denials





Factor I - Location Vs. Continue Approvals

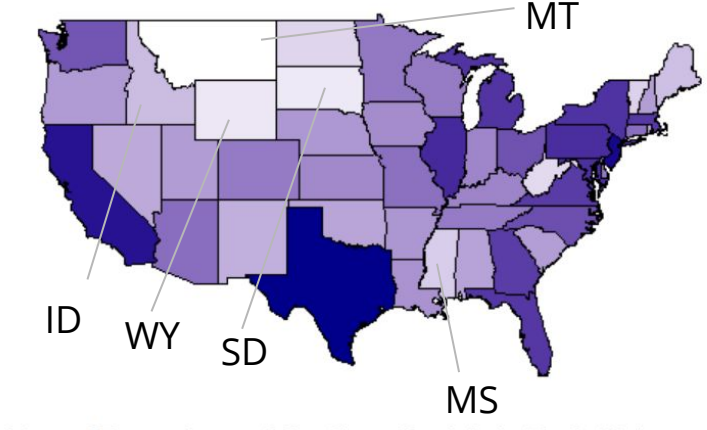


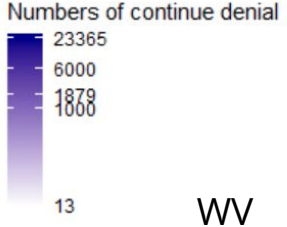


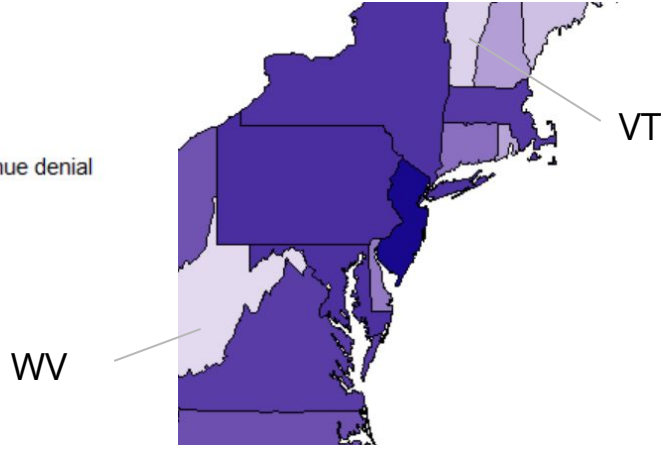
- CA, NJ, TX, NY and IL are the top five states that have large number of continue approvals
- VT, WA, SD, MS and RI are the top five states that have high percentage rate

Factor I - Location Vs. Continue Denials

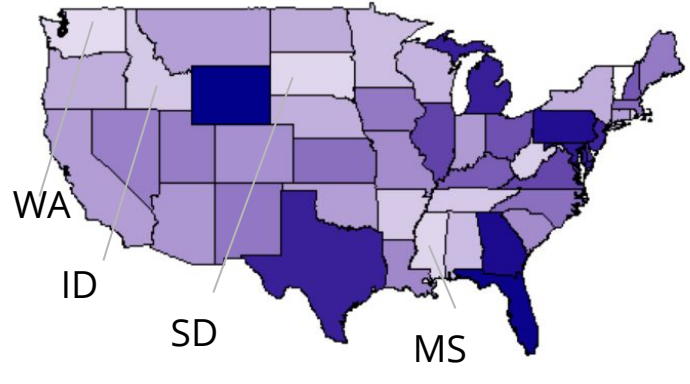
Map of Numbers of Continue Denials in Each State

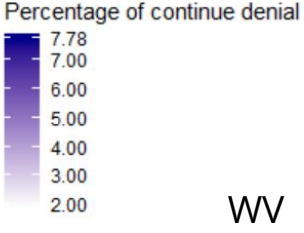


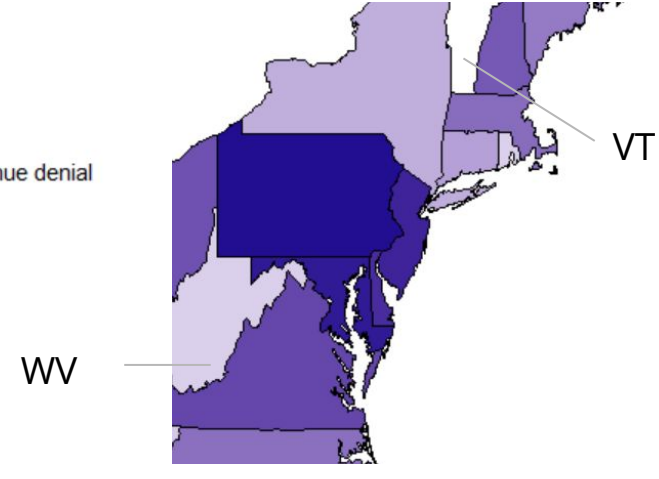




Map of Percentage of Continue Denials in Each State

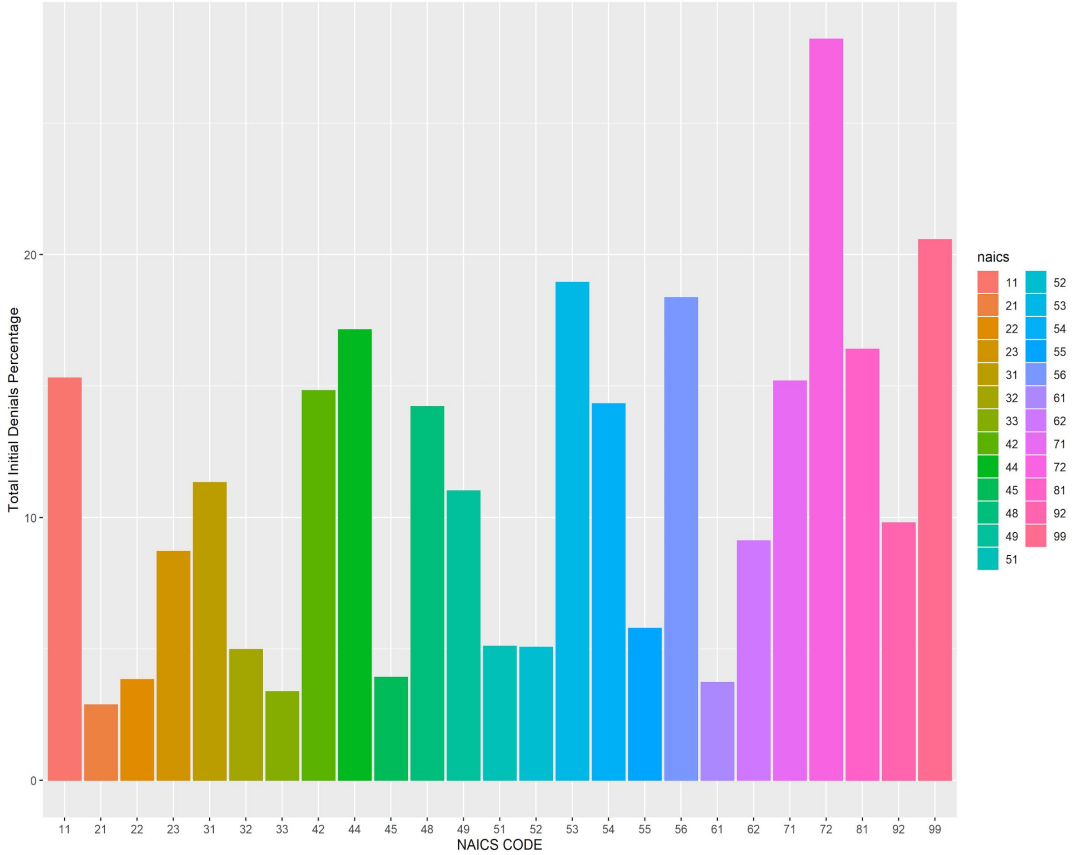






Industry

Factor II - Industry

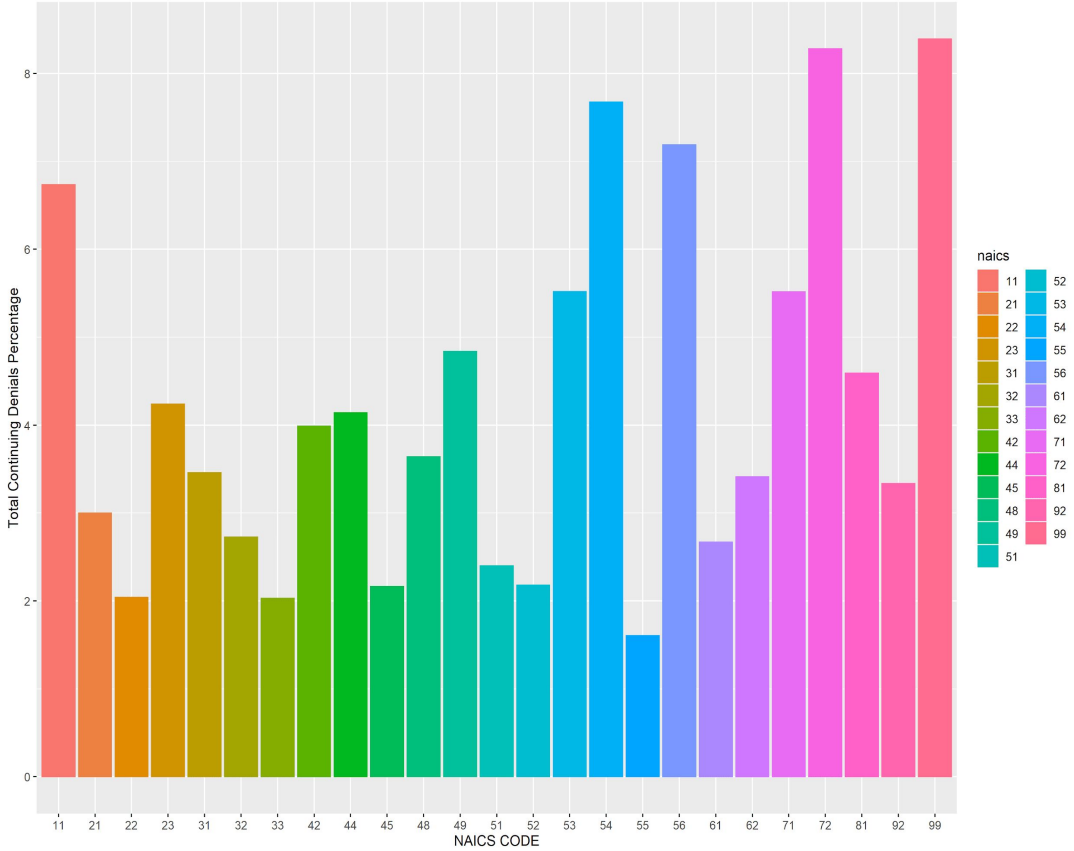


Industries vs NAICS

Total Initial Denial Percentage

- 21(Mining):
  - Mining industry employees are in demand
  - Skilled-labor shortage
- 72(Accommodation and Food Services):
  - Small Business (Low end job position)
  - Temporary Non-agricultural Worker Visa (H-2B)

Factor II - Industry (Continue)

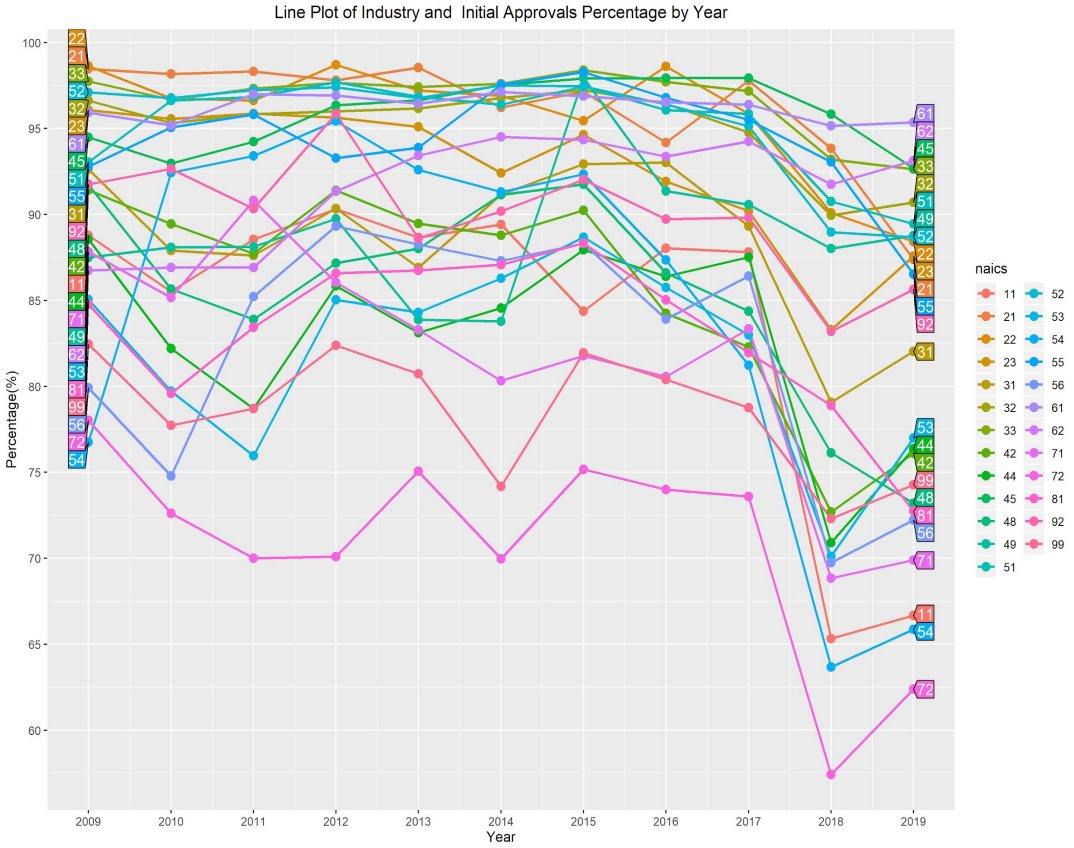


Industries vs NAICS

Total Continuing Denial Percentage

- 55(Management of Companies and Enterprises):
  - Eight major investment banks increased high-skilled workers by almost 60% over 5 years
  - Hard to fill with U.S workers
- 99(Nonclassifiable Establishments):
  - Industry is unknown. Any petition that had a blank code was assigned as 99 as well.

Factor II - Industry (Continue)

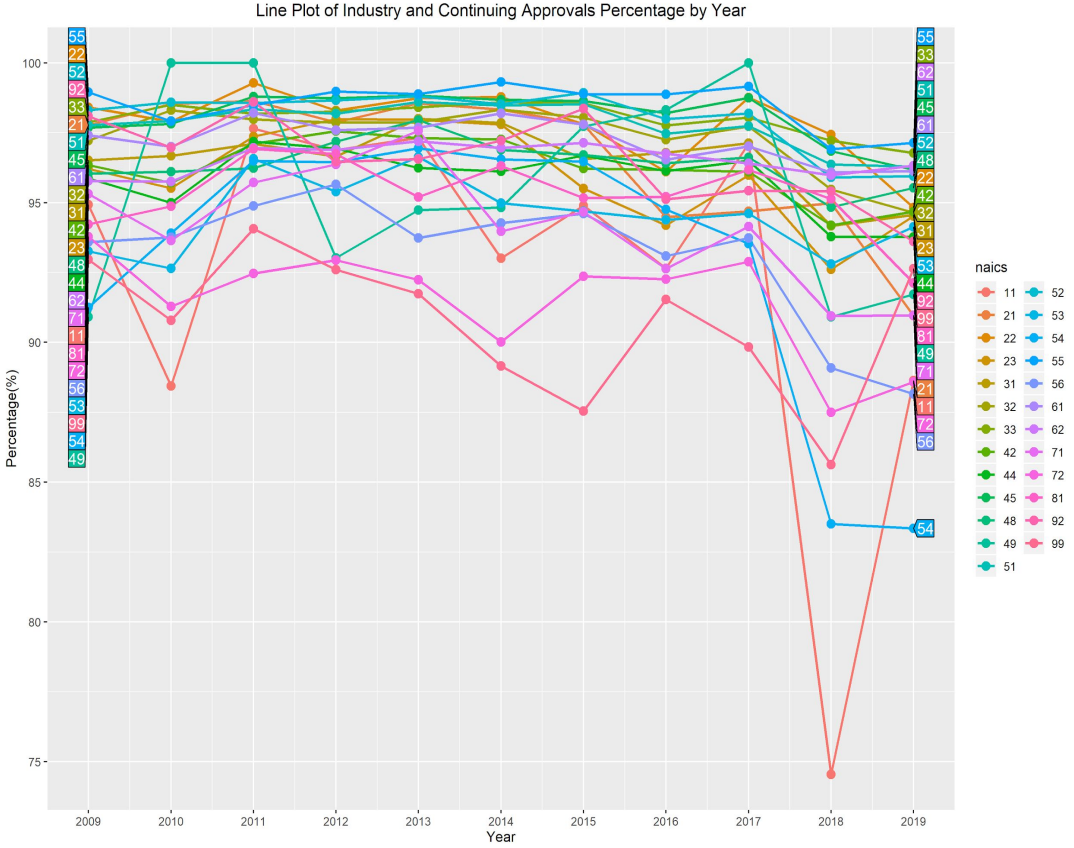


Industries vs NAICS by Year

Total Initial Approval Percentage

- 54(Professional, Scientific, and Technical Services):
  - 2010(increase 15.68%):
    - IT industry growth after recession.
  - 2018(decrease 29.37%):
    - Become “sensitive” subject
    - Increase numbers of applicants
    - Cost and paperwork increase due to the policy.

Factor II - Industry (Continue)

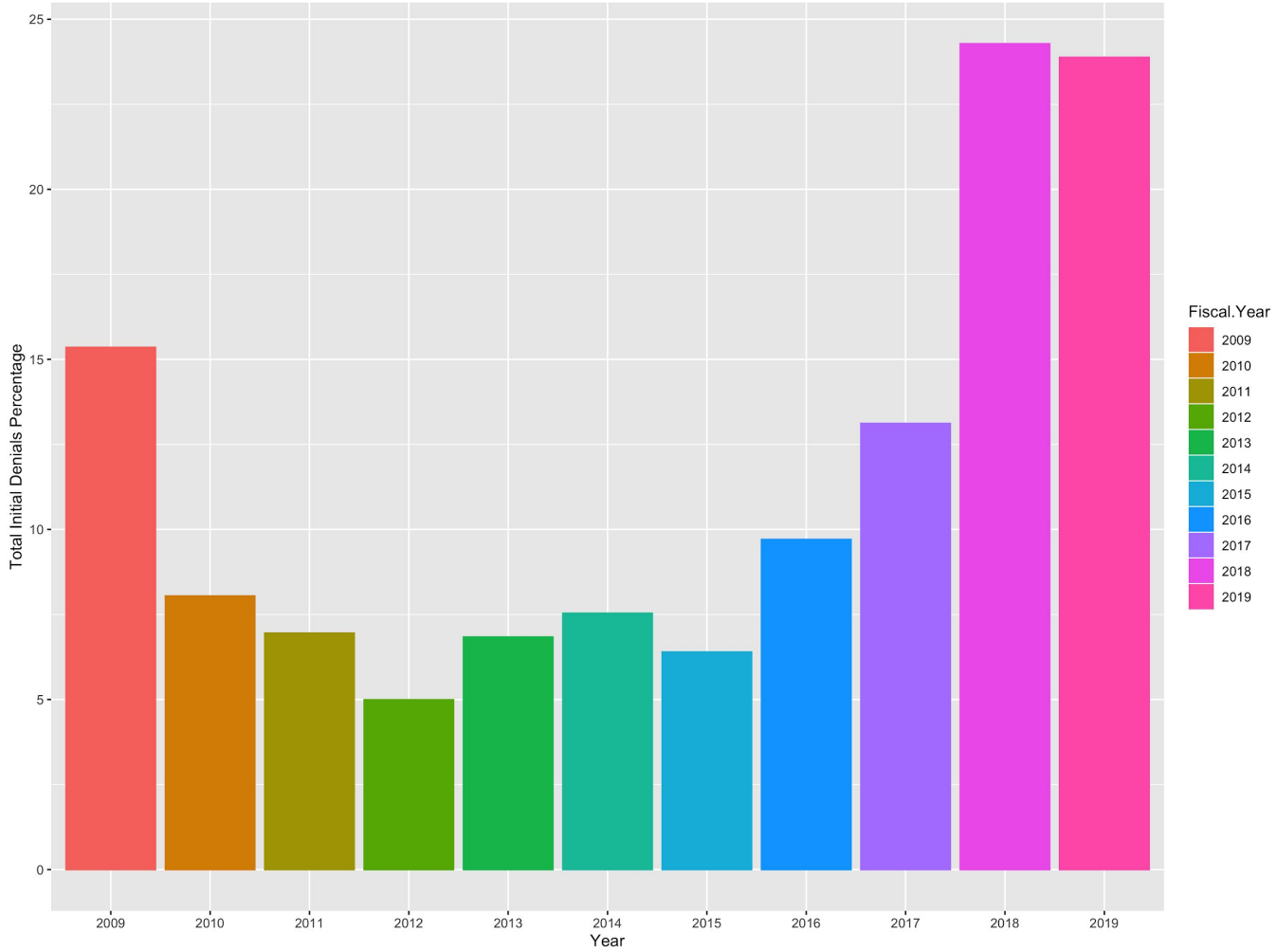


Industries vs NAICS by Year

Total Continuing Approval Percentage

- 11(Agriculture, Forestry, Fishing and Hunting):
  - Donald Trump's executive order
  - Shift to Temporary Non-Agricultural Workers (H-2A)

Factor III:
Year (& Policy)



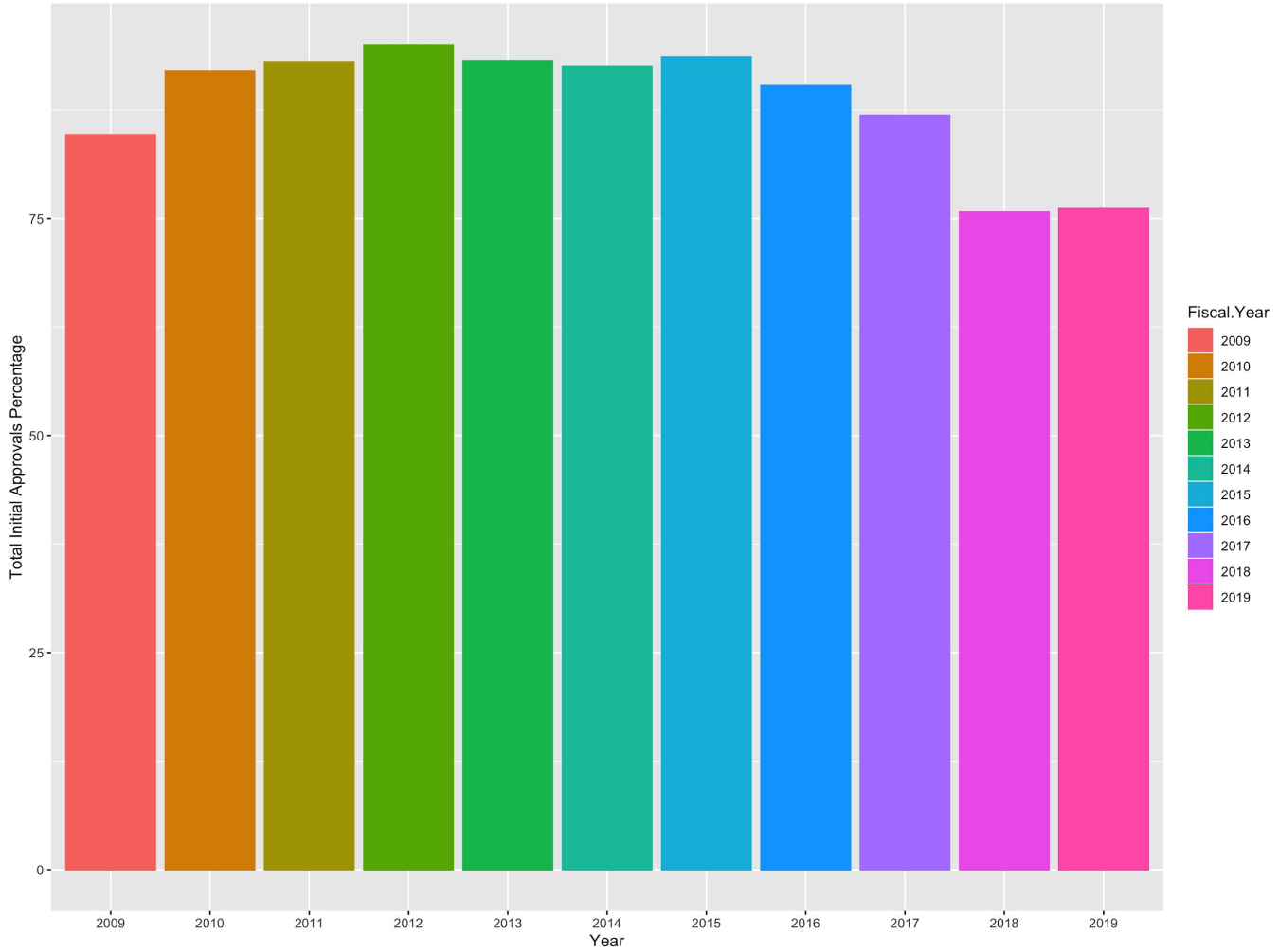
Year & Total Initial Denial Percentage

2012 to 2018:

- Increased from 5% to 24%

2015 to 2019:

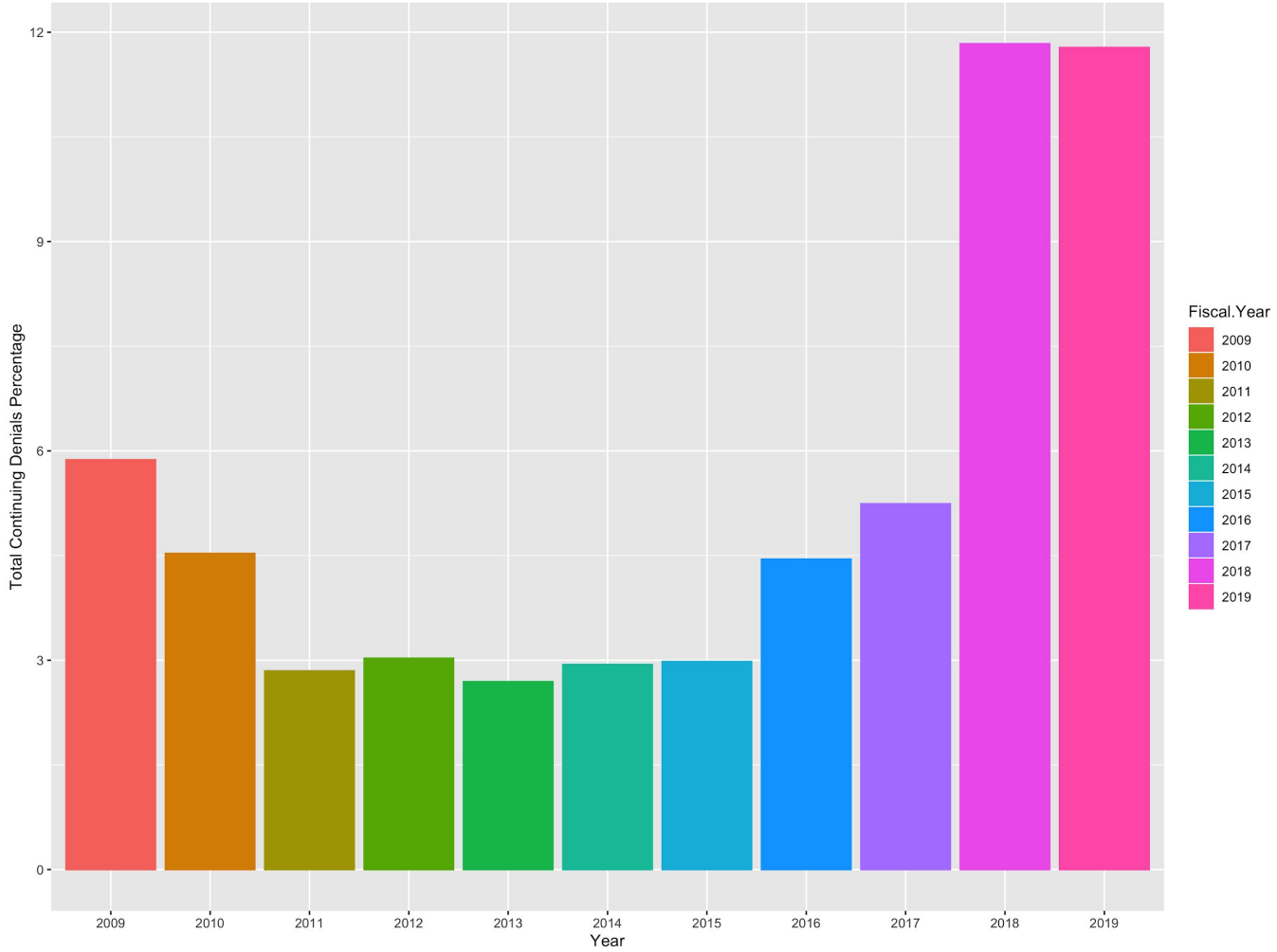
- Increase from 7% to 23%



Year & Initial Approvals

2017-2019:

- 87% approval down to 75% approval



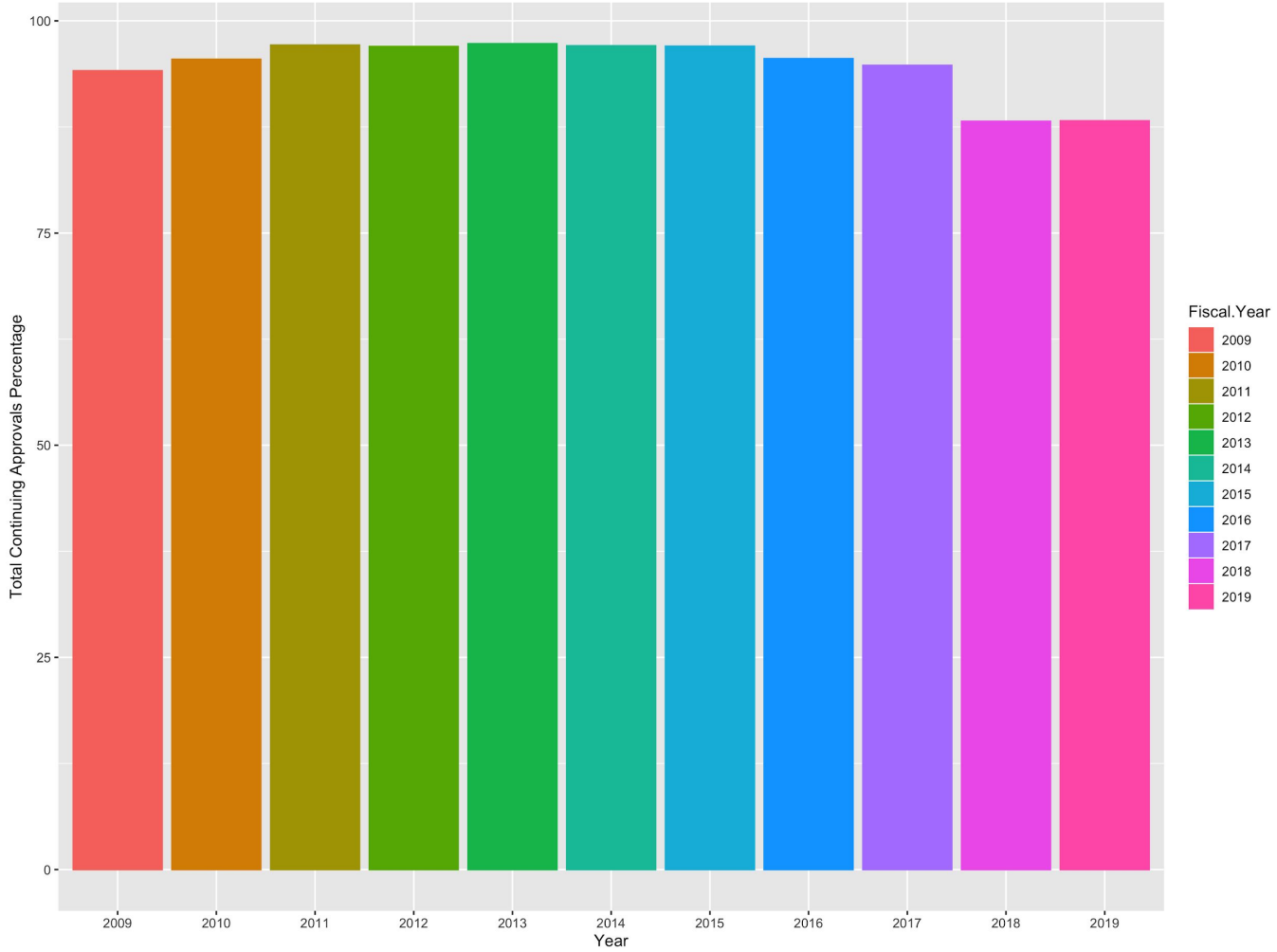
Year & Total Continuing Denial Percentage

2009 - 2019:

- Increased from 6% to ~12%

2013 - 2018:

- Increase from <3% to ~12%



Year & Continuing Approval

2017 - 2019:

- 93% approval down to 87% approval

Policy

- Between FY 2010 and FY 2015, denial rate never went over 8%
  - From 2015 to 2019, initial denial tripled from 7% to 23%
  - Form 2015 to 2019, continuing denial quadrupled from 3% to 12%
- Why?
  - US Citizenship and Immigration Services policies and procedures
    - They have raised the “standard of proof” for accepting H1b visas
    - The “Buy American and Hire American” executive order
      - Began in April 2017
      - “merit-based” immigration instead of “skill-based”
    - Has affected industry, cities/states labor force, and total foreign labor in US job market

Next steps

- **NAICS vs Location**
- **...**

Thank you!