

# Analyzing the Diversity of the Paycheck Protection Program

Economic Reimbursable Surveys Division  
U.S. Census Bureau

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coding it forward >



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# NEWS

Omicron forces...

**Small business struggles: Mount  
Washington coffee shop on brink of  
closing, other businesses shutting down**

**57% of Small Businesses Could Face  
Permanent Closure From Coronavirus  
Delta Surge**

*Survey shows most businesses just 'barely hanging on' after previous COVID-19 shutdowns*

**First**

# SBA COVID-19 RELIEF PROGRAMS PROJECT

Sponsored by the **Small Business Administration (SBA)** to analyze how SBA programs were allocated to different demographic groups during the pandemic

Four SBA programs included:

- Paycheck Protection Program (PPP) ← **Our focus**
- COVID-Economic Injury Disaster Loan (EIDL)
- Restaurant Revitalization Fund (RRF)
- Shuttered Venue Operators Grant (SVOG)

Motivated by **Executive Order 13985**: “Advancing Racial Equity and Support for Underserved Communities Through the Federal Government”

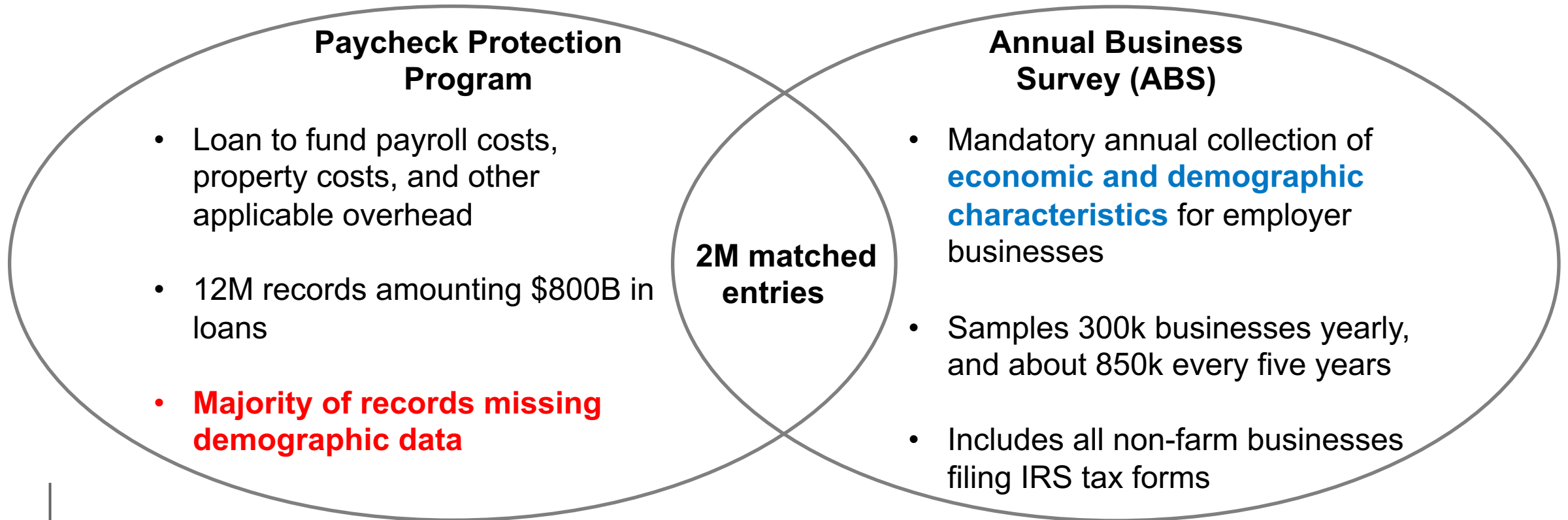


U.S. Small Business  
Administration

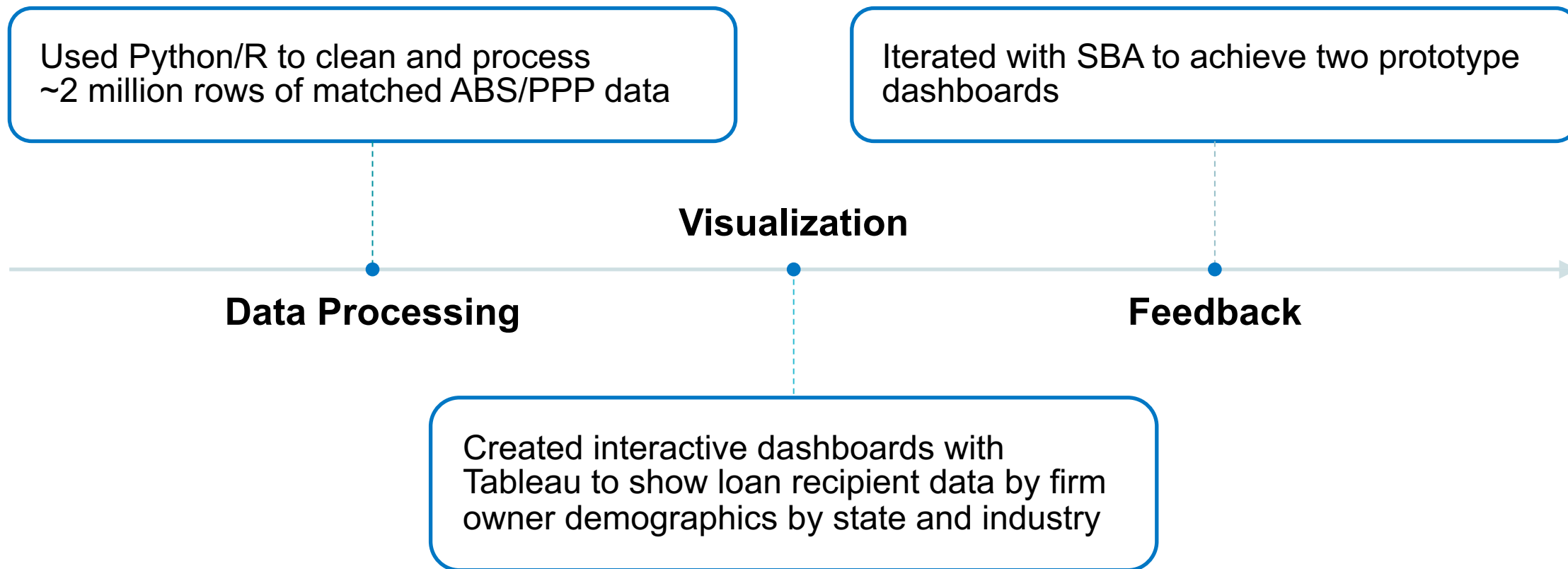
# PRIOR WORK: DATA LINKAGE

**Problem:** PPP records missing demographics

**Solution:** Match PPP records to ABS data



# OUR PROJECT: VISUALIZE MATCHED DATA



# Loan Comparison Tool



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## What is on this dashboard?

The overall distribution of the PPP loans is representative of the employer universe. Use the drop down menu on the right to filter according to firm owner characteristics. Hover over the "i" for more info.

Select Firm Owner Characteristic to Display

(All)

## Percentage Comparison: Loans vs. Firms

	Percentages of Approved PPP Loans	Percentages of ABS Firms	Percentage Point Difference	Loan to Payroll Ratio
Female	91.2%	79.2%	12.0%	39%
Male	34.2%	34.2%	0.0%	36%
Equally Female/Male	12.3%	2.3%	10.0%	25%
Veteran	48.2%	47.2%	1.0%	40%
Equally Veteran/Non Veteran	75.4%	65.4%	10.0%	35%
Non-Veterans	12.3%	27.3%	-15.0%	22%
Public or Other	91.2%	101.2%	-10.0%	30%
Equally Hispanic/Non-Hispanic	18.3%	10.3%	8.0%	29%
Non-Hispanic	12.7%	4.7%	8.0%	29%
Hispanic	27.3%	34.3%	-7.0%	26%
American Indian/Alaskan Native	63.4%	56.4%	7.0%	35%
Black	48.5%	44.5%	4.0%	29%
White	24.9%	29.9%	-5.0%	29%
Asian	66.6%	54.6%	12.0%	26%
Native Hawaiian/Pacific Islander	83.4%	88.4%	-5.0%	21%

# Dummy Stat U.S. Heatmap

National Average: 31

Select Statistic

Dummy Stat

Filter Industries

(All)

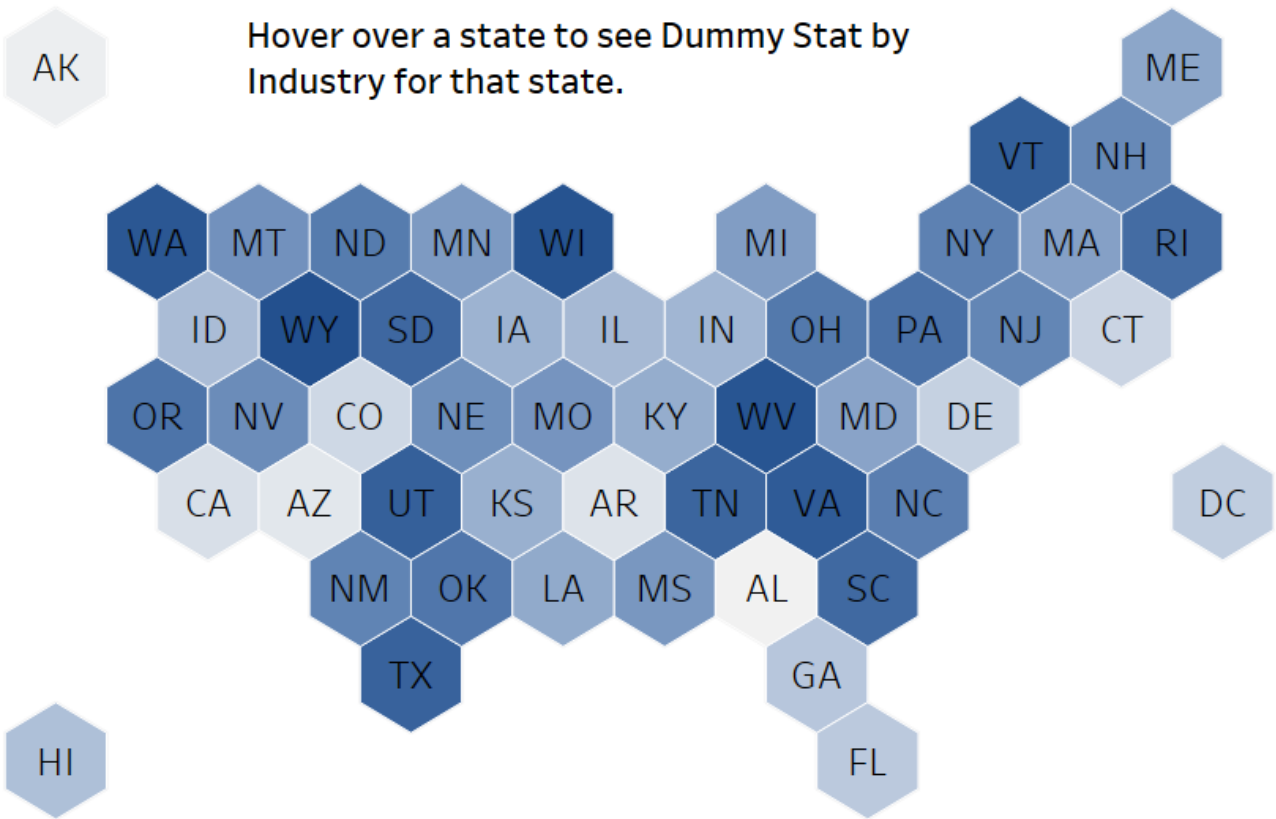
How To Use This Tool

Firm Owner Characteristic ⓘ

Sex

View and info options

Hover over a state to see Dummy Stat by Industry for that state.



Filter and statistic options

States and District of Columbia  
(ranked by Dummy Stat)

Puerto Rico	73
Wyoming	57
Wisconsin	56
West Virginia	55
Washington	54
Virginia	52
Vermont	51
Utah	50
Texas	49
Tennessee	48
South Dakota	47
South Carolina	46
Rhode Island	45
Pennsylvania	43
Oregon	42

Select Program:

PPP

EIDL

RRF

SVOG

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Table View

How To Use This Tool

View and info options

Dummy Stat (for public view)

Select Firm Owner Characteristic

Veteran

Select Statistic

Dummy Stat (for public view)

Filter Demographic

(All)

Filter NAICS Industry

(All)

Questions?



Filter and statistic options

Temporary:  
Color Explorer

Hex View

Census Blue

SBA Blue

SBA Green

2

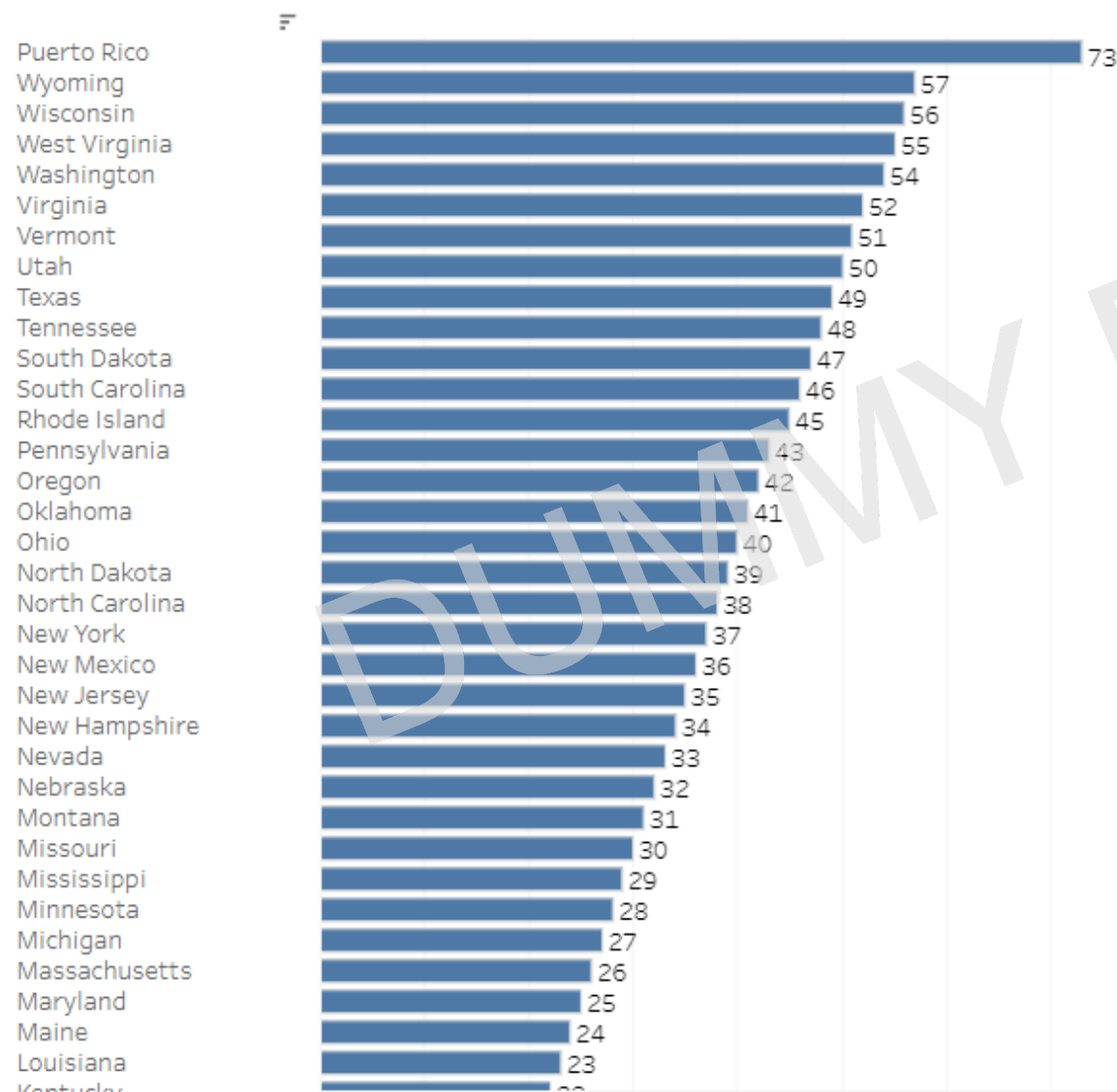
73



# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

[Map View](#)[How To Use This Tool](#)

Dummy Stat (for public view)



Select Demographic

Veteran

☒ Equal

☒ Non

☒ Veteran

Select Statistic

Dummy Stat (for public view)

Filter NAICS Industry

☒ (All)

☒ 11: Agriculture, Forestry, Fishing and Hunting

☒ 21: Mining, Quarrying, and Oil and Gas Extra...

☒ 22: Utilities

☒ 23: Construction

☒ 31-33: Manufacturing

☒ 42: Wholesale Trade

☒ 44-45: Retail Trade

☒ 48-49: Transportation and Warehousing

☒ 51: Information

☒ 52: Finance and Insurance

☒ 53: Real Estate and Rental and Leasing

☒ 54: Professional, Scientific, and Technical Ser...

☒ 55: Management of Companies and Enterpris...

☒ 56: Administrative and Support and Waste M...

☒ 61: Educational Services

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Dummy Stat (for public view)

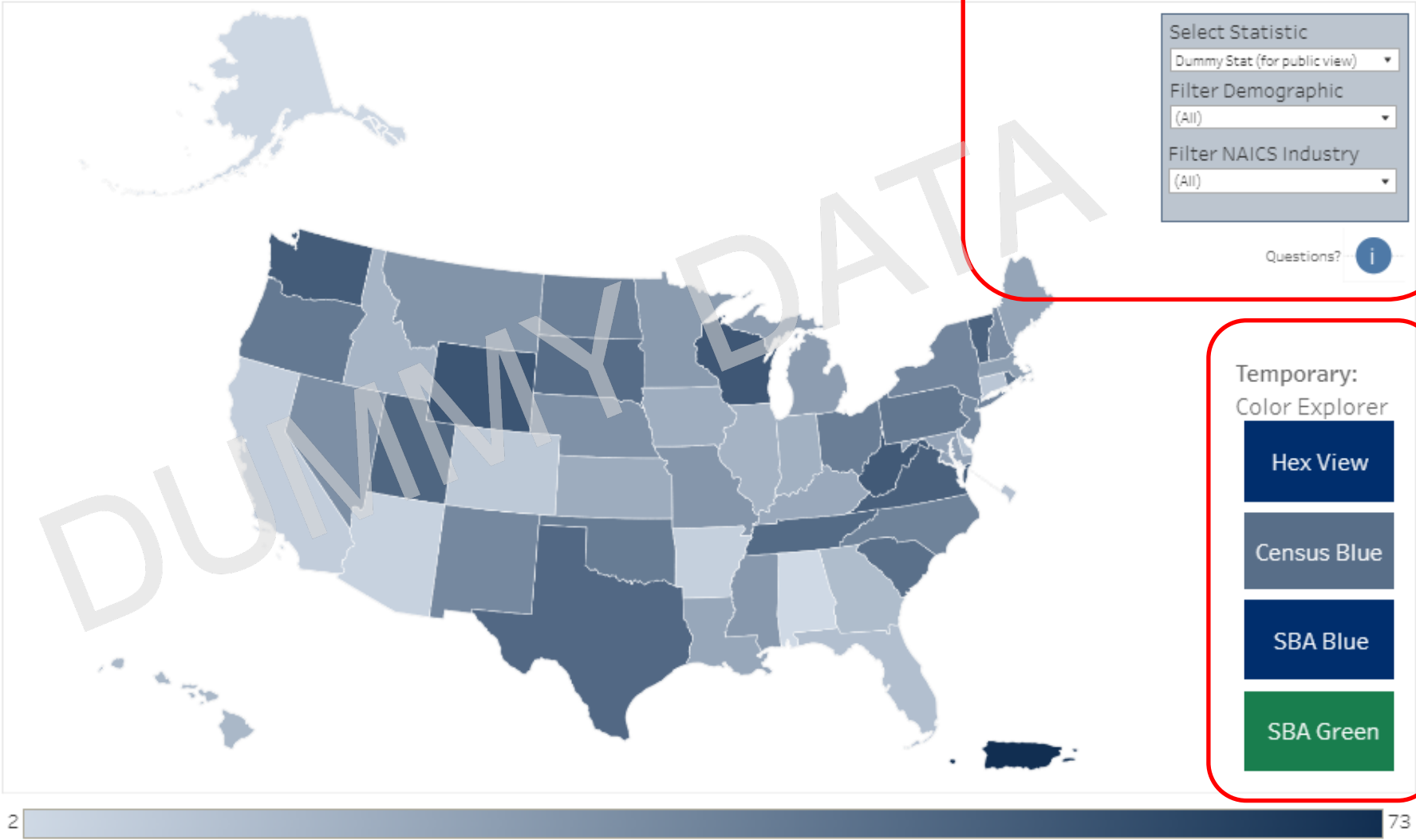


Table View

How To Use This Tool

View and info options

Select Firm Owner Characteristic

Veteran

Select Statistic

Dummy Stat (for public view)

Filter Demographic

(All)

Filter NAICS Industry

(All)

Questions?



Temporary:  
Color Explorer

Hex View

Census Blue

SBA Blue

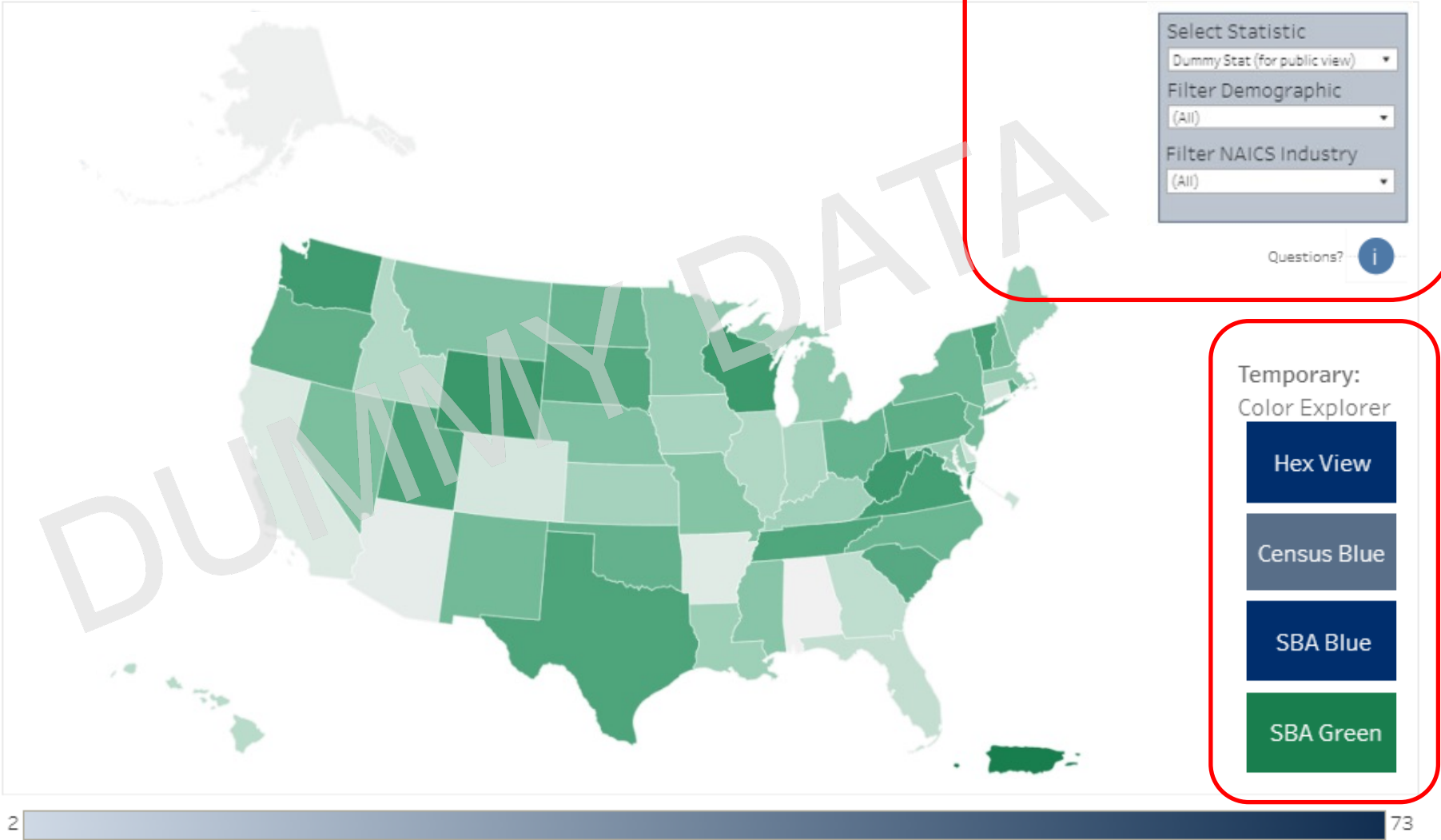
SBA Green

Filter and statistic options

Ability to easily select view and color options for fast iterating

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Dummy Stat (for public view)



View and info options

Filter and statistic options

Ability to easily select view and color options for fast iterating

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Dummy Stat (for public view)

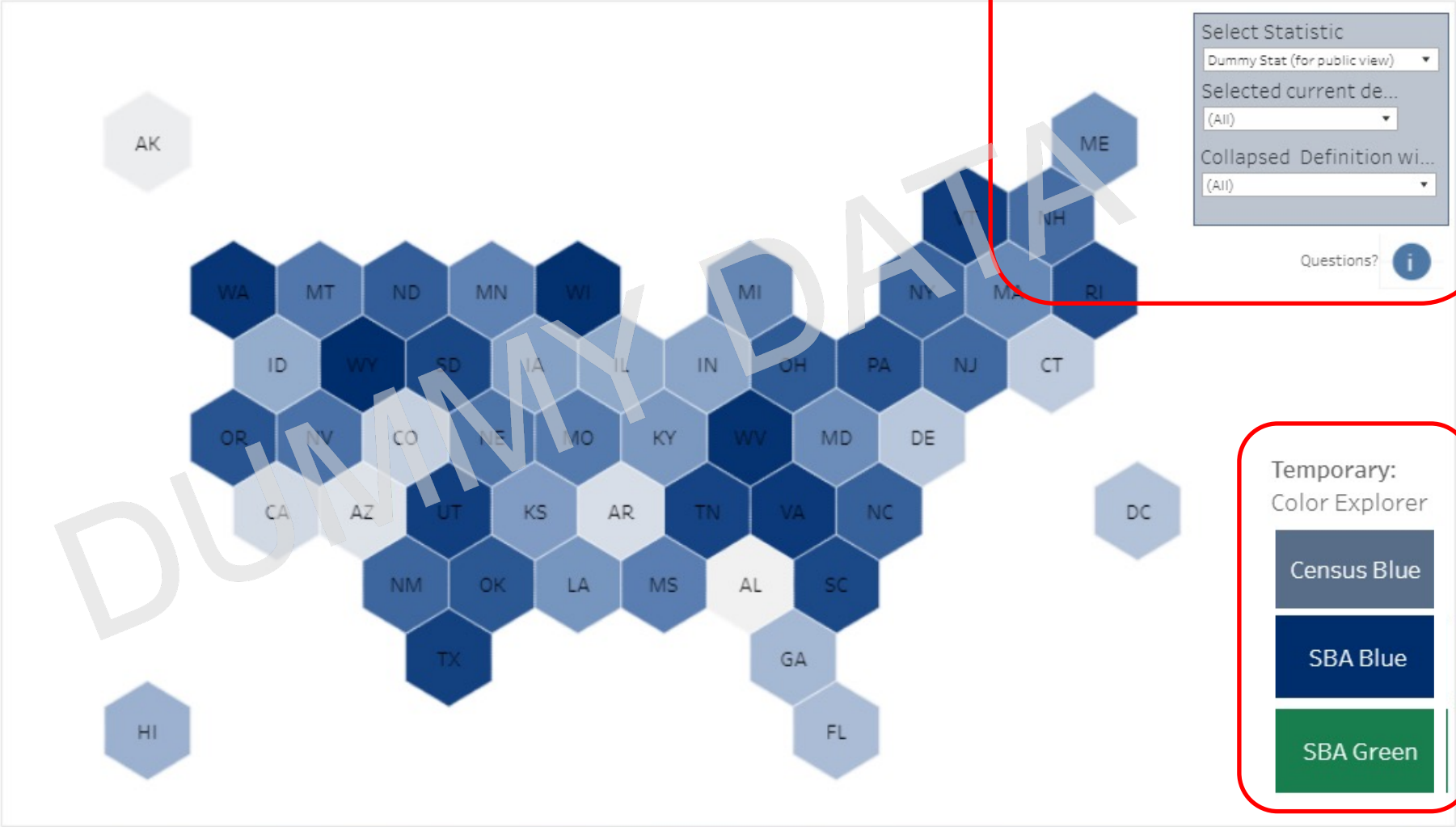


Table View

How To Use This Tool

View and info options

Select Firm Owner Characteristic

Veteran

Select Statistic

Dummy Stat (for public view)

Selected current de...

(All)

Collapsed Definition wi...

(All)

Questions?



Filter and statistic options

Temporary:  
Color Explorer

Census Blue

SBA Blue

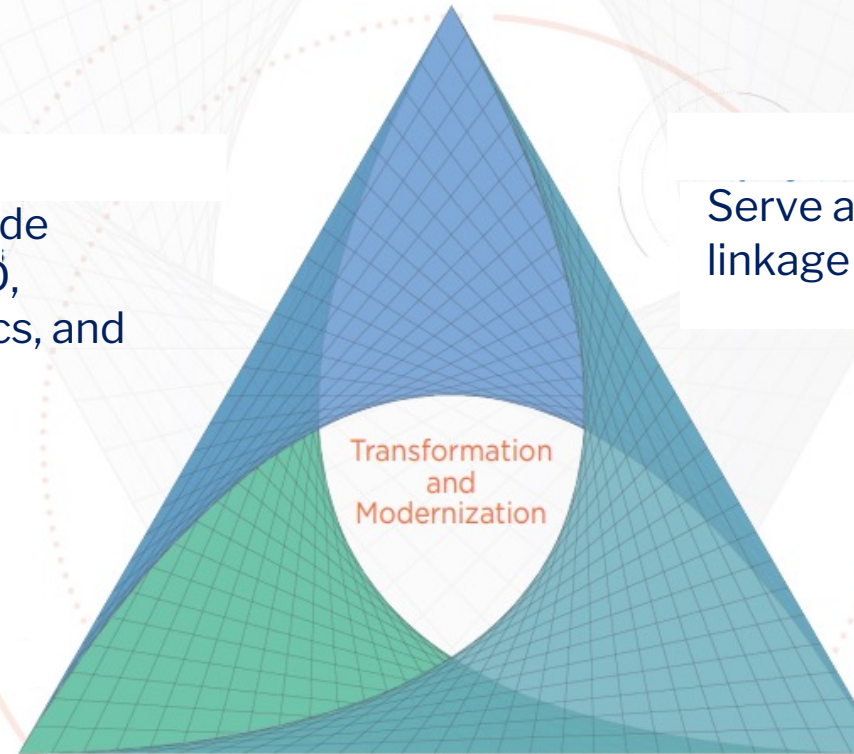
SBA Green

Ability to easily select view and color options for fast iterating

# FUTURE WORK

Expand dashboards to include other SBA programs, NES-D, Business Dynamics Statistics, and other Census programs

Serve as a template and linkage for future projects



Become public-facing dashboards on the SBA site

# THANK YOU!

## Questions?

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Department of  
**STATISTICS**

**Natraj Vairavan**

[natraj.a.vairavan@census.gov](mailto:natraj.a.vairavan@census.gov)





# APPENDIX A: ADDITIONAL ABS INFO



# Background - Annual Business Survey (ABS)

- ▶ Mandatory annual collection of economic and demographic characteristics for employer businesses by sex, ethnicity, race, and veteran status
  - ▶ Sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation
- ▶ Samples 300K yearly, ~850K every 5 years
- ▶ Includes all nonfarm businesses filing IRS employer tax forms and covers 20 NAICS (North American Industry Classification System) industries
- ▶ Uses economic census and administrative data (i.e. NAICS, geography, receipts, payroll and employment, employment size, receipts size, and years in business) and rotates select content to measure topics of relevance frequently
- Frequency
  - ▶ 2022 ABS (reference year 2021) will be released November 2023
  - ▶ 2023 ABS (reference year 2022) being collected now

## ▶ U.S. Businesses in 2020

- ▶ Firm Count: 5,775,258
  - ▶ Receipts (sales): 38,850,255,975,000
  - ▶ Employees: 129,363,644
  - ▶ Payroll: 7,347,826,423,000
- ▶ The statements in this presentation have not been verified for statistical significance



- Most employer firms are relatively small (less than 500 employees).
- Majority of minority-owned employer firms employ 1-4 employees.
- Similar trend for women- and Hispanic-owned firms.

## Percentage of **Employer Firms** by Size of Firm



Notes: Minority-owned firms are classified as any race and ethnicity combination other than non-Hispanic and White.

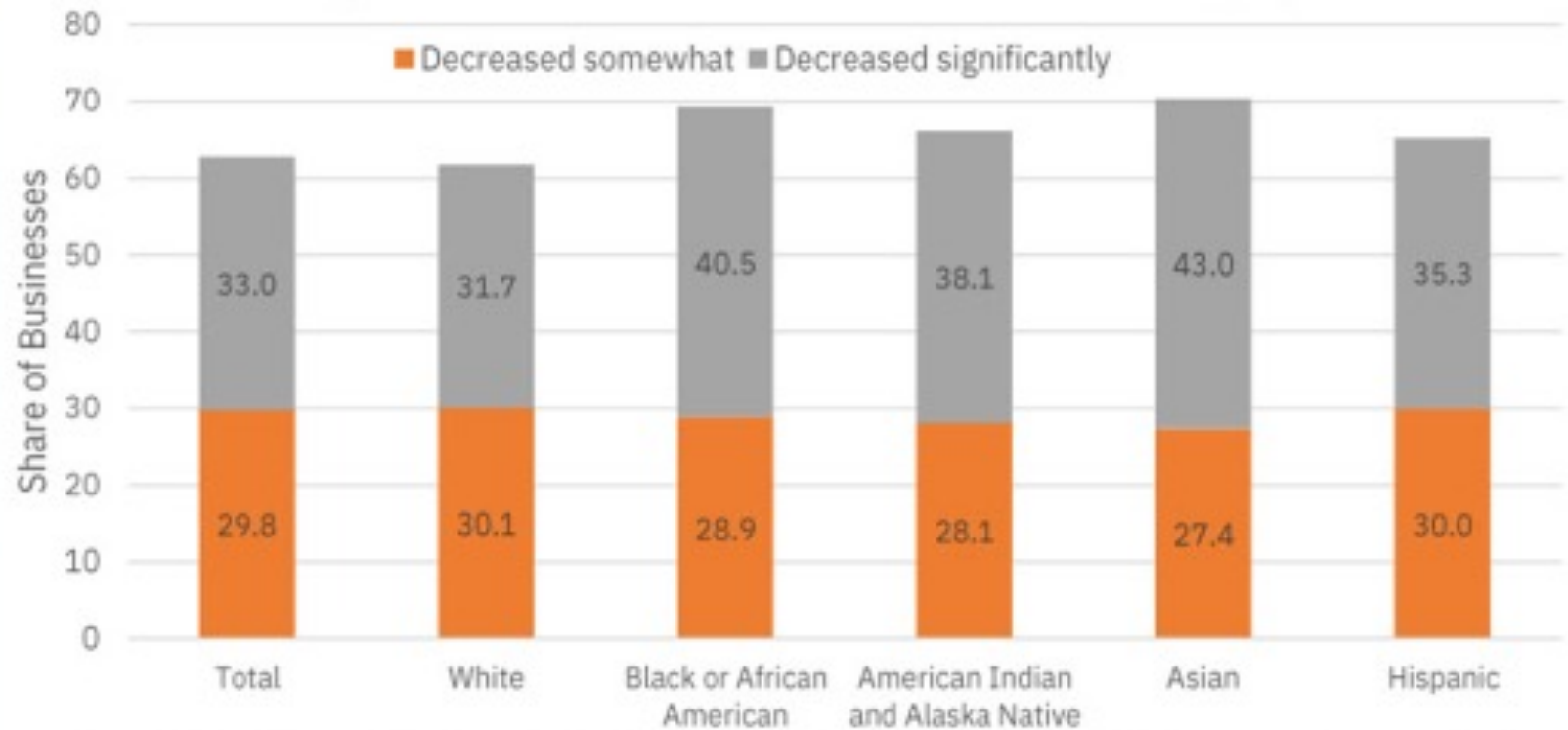
Data includes firms with payroll at any time during 2018. Employment reflects the number of paid employees during the March 12 pay period.

The Annual Business Survey (ABS) includes employer businesses only. The ABS is sponsored by the National Center for Science and Engineering Statistics within the National Science Foundation.

Source: U.S. Census Bureau and National Center for Science and Engineering Statistics, 2019 Annual Business Survey, data year 2018.

- For most businesses, the pandemic had a negative impact on their revenues in 2020 (63 percent of all businesses).
- Minority-owned firms more frequently reported that they experienced significant declines in business sales.

**Figure 1: The Pandemic's Effect on Business Sales, by Race**



Note: The specific question was, "How would you assess the overall effect of the coronavirus pandemic on this business's sales in 2020?" Response options were: increased significantly, increased somewhat, had little to no change, decreased somewhat, or decreased significantly.

Source: US Census Bureau and National Center for Science and Engineering Statistics 2021 Annual Business Survey

# Paycheck Protection Program (PPP) Background

- Established by the CARES Act to help businesses keep their workforce employed during the COVID-19 crisis.
- Funds were used for **payroll costs (including benefits), interest on mortgages, rent, utilities,** and **interest payments on some debts.**
- Eligibility included:
  - Businesses with 500 or fewer employees
  - Entities with more than 500 employees in certain industries that met SBA's alternative size standard
- Application periods were defined by rounds:
  - **Round 1- April 3-16, 2020:** This round was announced days before applications were accepted and ended when PPP allocations ran out.
  - **Round 2-April 27 - August 8, 2020:** This round ended before funds were exhausted.
  - **Round 3- January 11 - June 30, 2021:** This round included a special application period for businesses with less than 20 employees.
- 11,823,594 loans approved for ~\$800 Billion
- ~12.5 Million records received from the SBA



# APPENDIX B: ADDITIONAL FEATURES



# Loan Comparison Tool



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## What is on this dashboard?

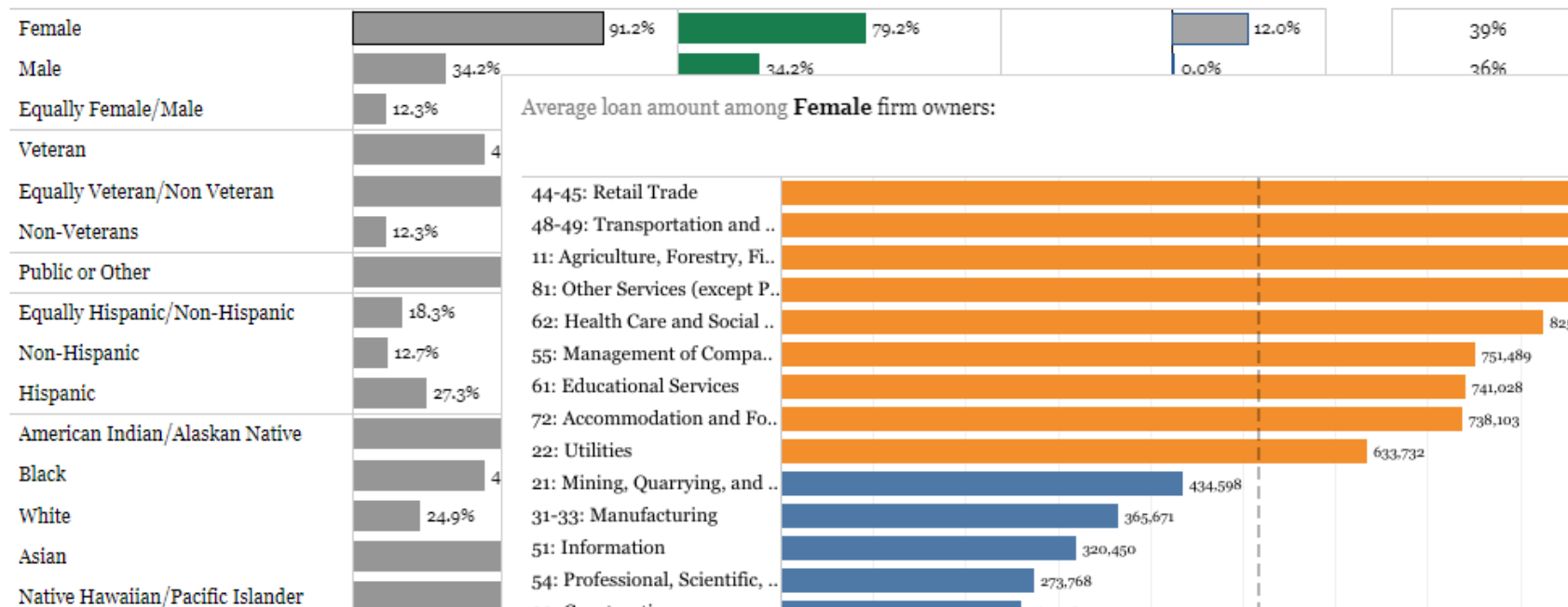
The overall distribution of the PPP loans is representative of the employer universe. Use the drop down menu on the right to filter according to firm owner characteristics. Hover over the "i" for more info.

Select Firm Owner Characteristic to Display

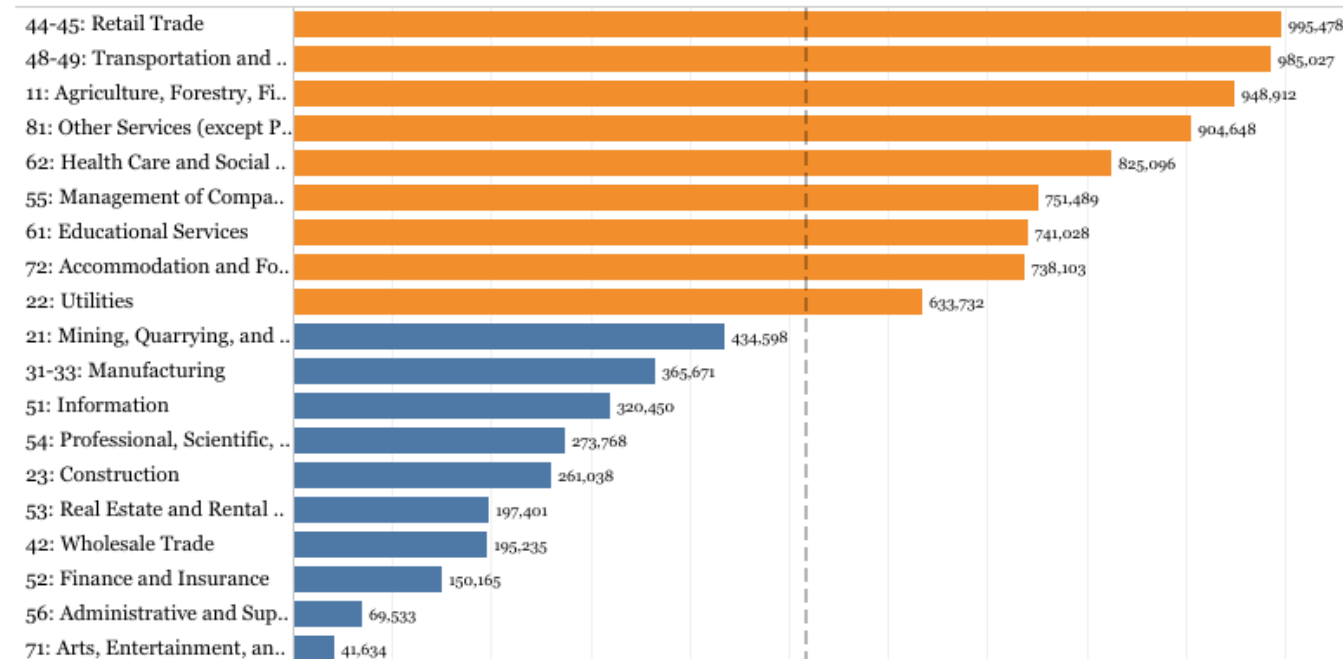
(All) ▼

## Percentage Comparison: Loans vs. Firms

Ratio



Average loan amount among **Female** firm owners:



Notes: Annual Business Survey is ABS. The information and has approved the disclosure avoidance practices applied (Approval ID: CDDP-EX-00-ESMD-010-000)

# Loan Comparison Tool



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United States™  
**Census**  
Bureau

## What is on this dashboard?

The overall distribution of the PPP loans is representative of the employer universe. Use the drop down menu on the right to filter according to firm owner characteristics. Hover over the "i" for more info.

Select Firm Owner Characteristic to Display

(All) ▼

## Percentage Comparison: Loans vs. Firms

	Percentages of Approved PPP Loans	Percentages of ABS Firms
Female	91.2%	79.2%
Male	34.2%	34.2%
Equally Female/Male	12.3%	2.3%
Veteran	48.2%	47.2%
Equally Veteran/Non Veteran	75.4%	65.4%
Non-Veterans	12.3%	27.3%
Public or Other	91.2%	101.2%
Equally Hispanic/Non-Hispanic	18.3%	10.3%
Non-Hispanic	12.7%	4.7%
Hispanic	27.3%	34.3%
American Indian/Alaskan Native	63.4%	56.4%
Black	48.5%	44.5%
White	24.9%	29.9%
Asian	66.6%	54.6%
Native Hawaiian/Pacific Islander	83.4%	88.4%

Ratio



39%

Firm Owner Demographics1: **Female**

Group: **Sex**

Ratio: **39%**

55: Management of Companies and Enterprises	22.2%
21: Mining, Quarrying, and Oil and Gas Extraction	21.8%
72: Accommodation and Food Services	19.9%
52: Finance and Insurance	19.3%
44-45: Retail Trade	18.9%
54: Professional, Scientific, and Technical Services	15.9%
23: Construction	15.7%
31-33: Manufacturing	15.7%
11: Agriculture, Forestry, Fishing and Hunting	15.4%
42: Wholesale Trade	15.2%
48-49: Transportation and Warehousing	13.4%
81: Other Services (except Public Administration)	12.1%
62: Health Care and Social Assistance	7.9%
22: Utilities	7.6%
61: Educational Services	6.5%
53: Real Estate and Rental and Leasing	6.1%
56: Administrative and Support and Waste Management and Remediation Serv	4.2%
71: Arts, Entertainment, and Recreation	2.9%
51: Information	2.0%

Notes: Annual Business Survey is ABS. The U.S. Census Bureau has reviewed this data for accuracy and has approved the disclosure avoidance practices applied (Approval)

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Table View

How To Use This Tool

Dummy Stat (for public view)

Select Firm Owner Characteristic

Veteran

Select Statistic

Dummy Stat (for public view)

Filter Demographic



Dummy Stat (for public view)

State: Alaska

11: Agriculture, Forestry, Fishing and Hunting  
21: Mining, Quarrying, and Oil and Gas Extraction  
22: Utilities  
23: Construction  
31-33: Manufacturing  
42: Wholesale Trade  
44-45: Retail Trade  
48-49: Transportation and Warehousing  
51: Information  
52: Finance and Insurance  
53: Real Estate and Rental and Leasing  
54: Professional, Scientific, and Technical Services  
55: Management of Companies and Enterprises  
56: Administrative and Support and Waste Management and Remediation Services  
61: Educational Services  
62: Health Care and Social Assistance  
71: Arts, Entertainment, and Recreation  
72: Accommodation and Food Services  
81: Other Services (except Public Administration)  
NA



Average for selected NAICS codes and demographics : 3

# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Dummy Stat (for public view)

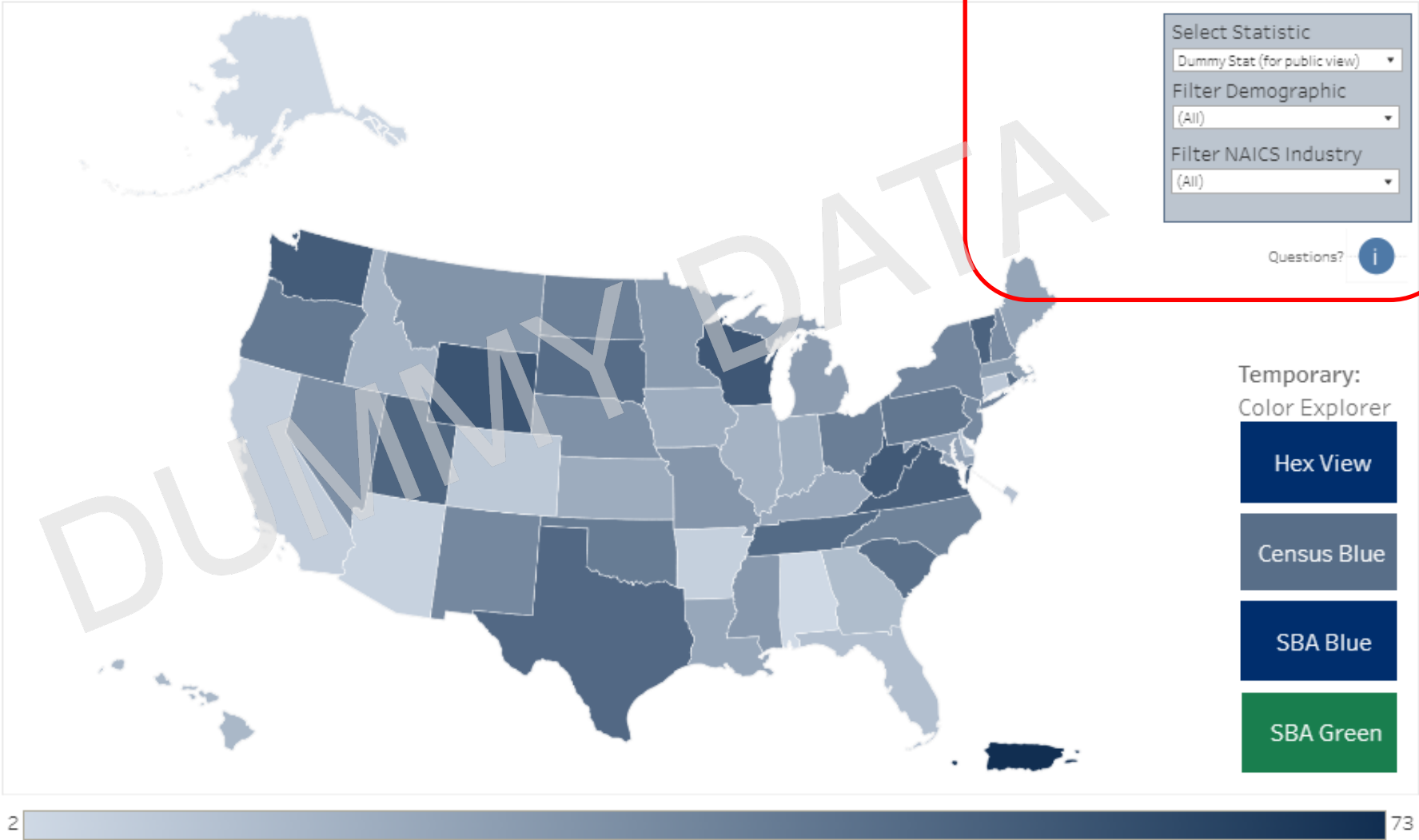


Table View

How To Use This Tool

View and info options

Select Firm Owner Characteristic

Veteran

Select Statistic

Dummy Stat (for public view)

Filter Demographic

(All)

Filter NAICS Industry

(All)

Questions?



Filter and statistic options

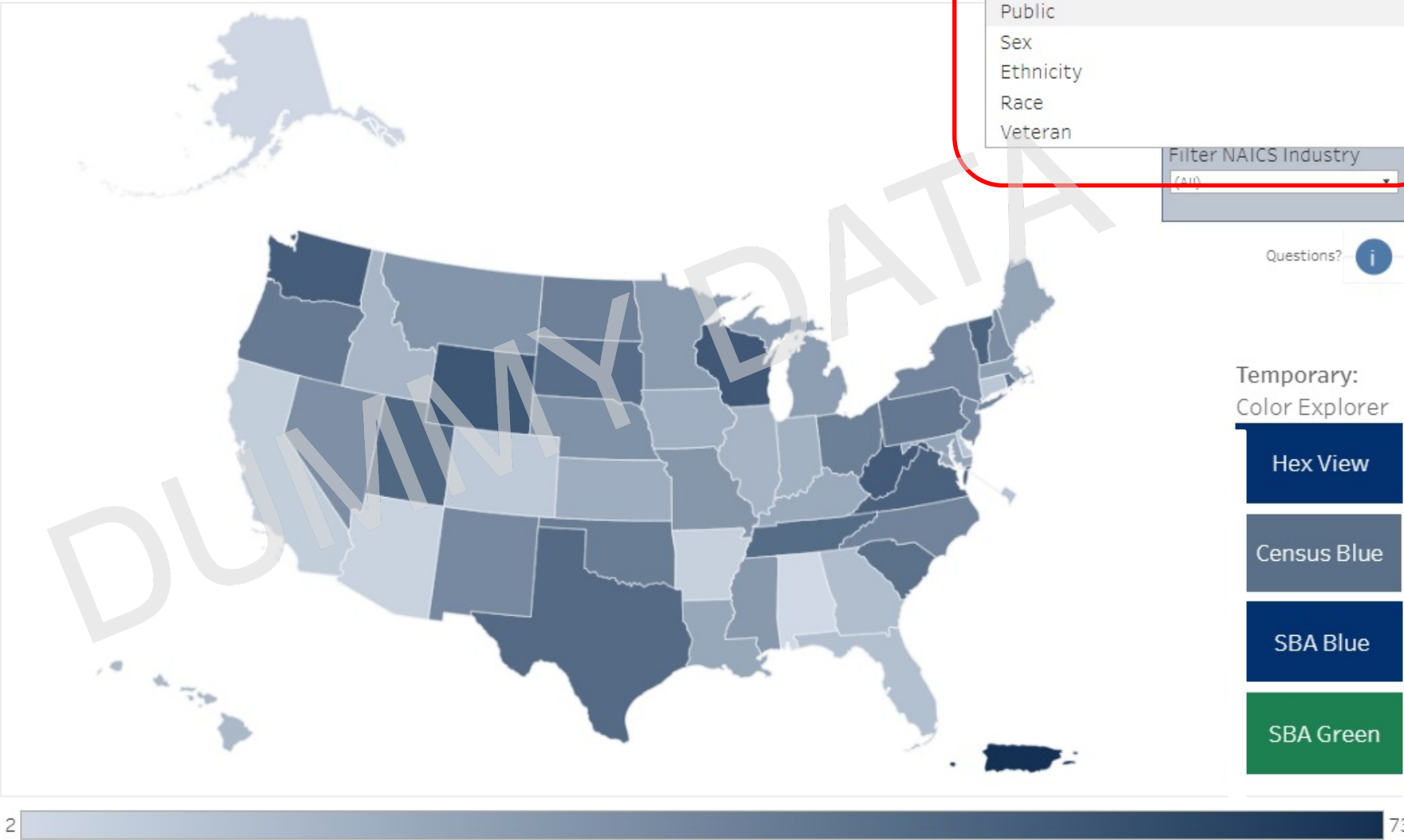


# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Table View

How To Use This Tool

Dummy Stat (for public view)



# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Table View

How To Use This Tool

Dummy Stat (for public view)

Select Firm Owner Characteristic

Race

Select Statistic

Dummy Stat (for public view)

PPP Average Loan Amount

PPP Average Loan Amount by ABS Average Payroll

ABS Average Payroll

ABS Average Employment

PPP Median Loan Amount

PPP Median Loan Amount by ABS Median Payroll

ABS Median Payroll

ABS Median Employment

Dummy Stat (for public view)

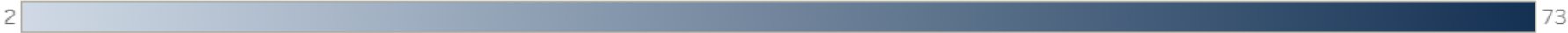
Temporary:  
Color Explorer

Hex View

Census Blue

SBA Blue

SBA Green



# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

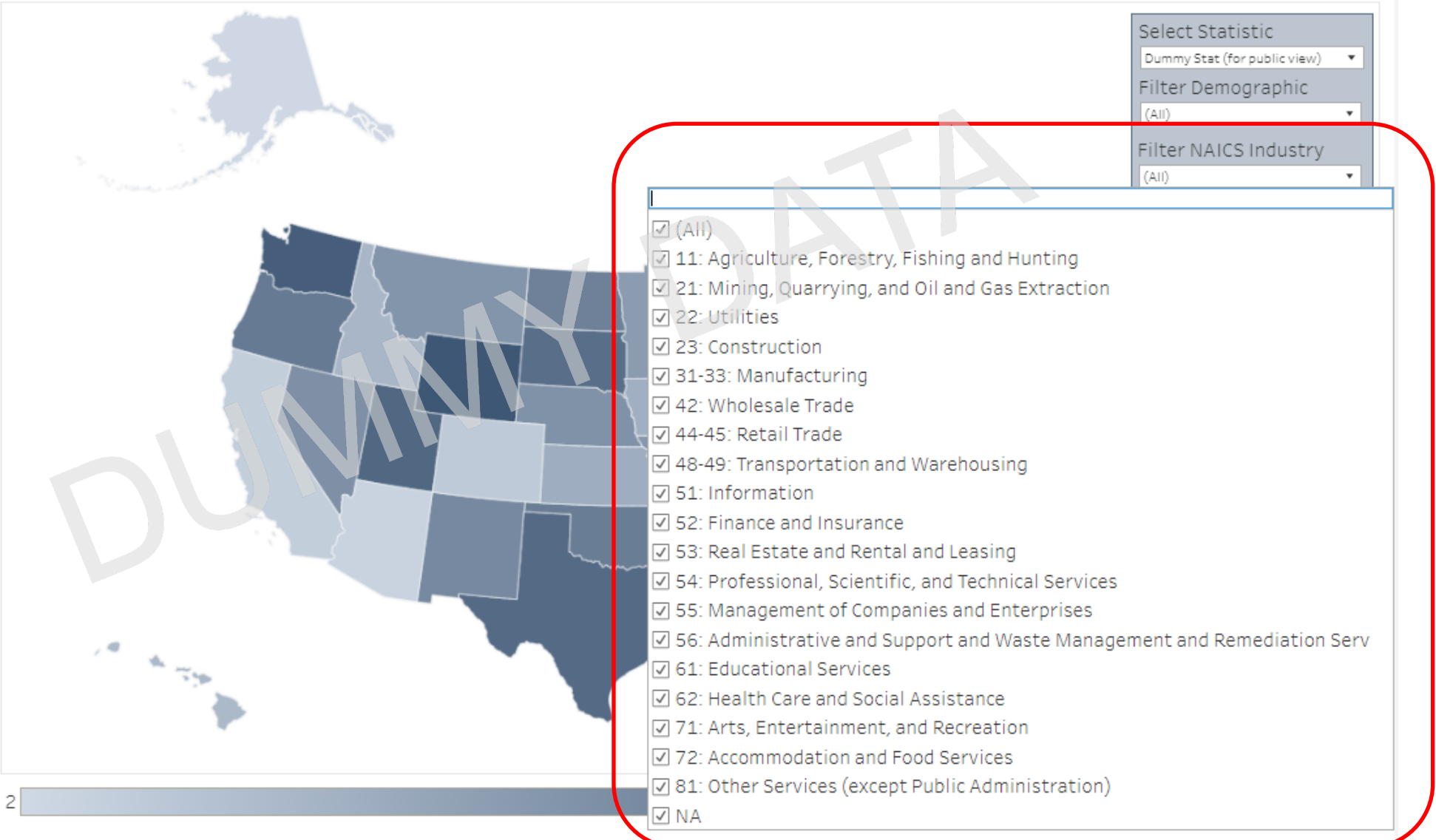
Table View

How To Use This Tool

Dummy Stat (for public view)

Select Firm Owner Characteristic

Race



# Analyzing the Diversity of Paycheck Protection Program (PPP) Employer Firms

Table View

How To Use This Tool

Dummy Stat (for public view)

Select Firm Owner Characteristic

Race

Select Statistic

Dummy Stat (for public view)

Filter Demographic

(All)

Filter NAICS Industry

(All)

Employer estimates are survey-derived (reference year 2017, 2018, and 2019 ABS). Business ownership is defined as having more than 50% of stock or equity in the business and is categorized by the selected demographic (Race). Publicly owned firms are not classifiable by Race so are given their own option. The data values are rounded to provide protection to confidential information.

Color Explorer

Hex View

Census Blue

SBA Blue

SBA Green

