Economic Statistical Methods Division

New Kid on the Block: Introduction to the Business Formation Statistics

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International Trade Statistical Methods Branch

Disclaimer

- Any views expressed are those of the author(s) and not necessarily those of the U.S. Census Bureau.

- The Census Bureau has reviewed the data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied. (Approval ID: CBDRB-FY18-009).

Overview

Introduction

Seasonal Adjustment Processing

Moving Holiday

Data Visualizations

Future Work

United States Census Bureau

U.S. Department of Commerce
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What is Business Formation Statistics?

- Provide timely and high frequency information on new business applications and formations in the United States

- Developed in research collaboration with economists affiliated with
  - Board of Governors of the Federal Reserve System
  - Federal Reserve Bank of Atlanta
  - University of Maryland
  - University of Notre Dame

BFS Uses

- Help economists, policymakers, regional planners and businesses assess the current state of early entrepreneurship at the national, regional and state levels

- Uncover the trends in business applications and formations at previously unavailable levels of frequency, coverage, and timeliness

- Can be used to study a variety of issues in entrepreneurship

BFS Data

Business applications:

Indicated by applications for an Employer Identification Number (EIN) on IRS Form SS-4

Actual and projected business formations:

Originating from business applications based on the record of first payroll tax liability for an EIN (by BR and LBD)
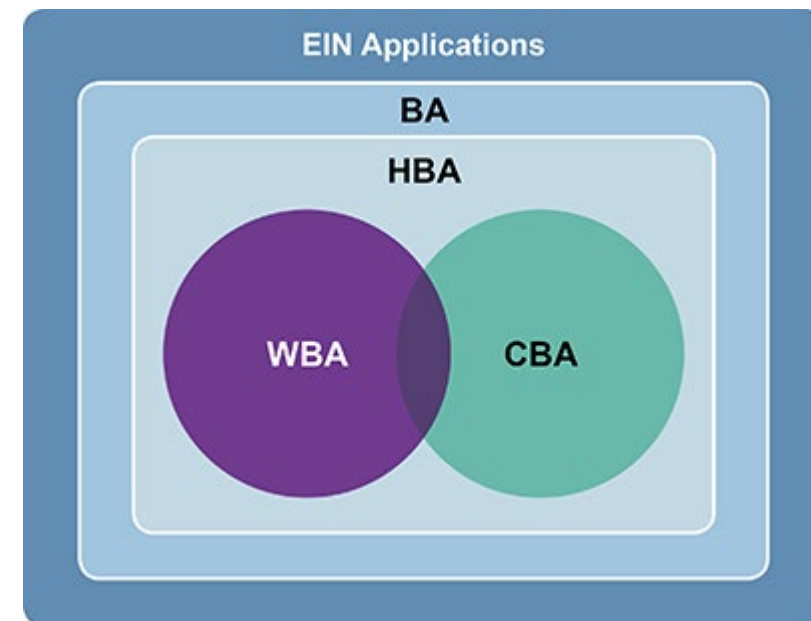
Delay in business formation:

Indicated by the average duration between business application and business formation

Restricted Applications

- Associated with tax-liens, trusts, and estates

- Industries within the agricultural, financial services and private household sectors
  - Very low transition rates to employer businesses

- Public entities (e.g., state or local governments)

- Missing state information (a small fraction of applications)

- Puerto Rico or the Virgin Islands

- Concentrated filing spikes
  - Appear in the same weekly application cycle, come from the same zip code, and share the same industry code
  - Do not represent an intent to form a business

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Business Application Series

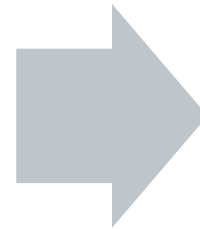| Series	Acronym	Descriptions
Business Applications	BA	The core business application series that correspond to a subset of all applications for an EIN.
High-Propensity Business Applications	HBA	BA that have a high propensity of turning into businesses with a payroll.
Business Application with Planned Wages	WBA	HBA that indicate a first wages-paid date on the IRS form SS-4.
Business Applications from Corporations	CBA	HBA from a corporation or personal service corporation, based on the legal form of organization stated in the IRS Form SS-4.

EIN Applications
BA
HBA
WBA
CBA

Business Formation Series

Series	Acronym	Description
Business Formations within 4 Quarters	BF4Q	Provide the number of employer businesses that originate from (BA) within 4 quarters from the quarter of application.
Projected Business Formations with 4 Quarters	PBF4Q	The projected number of employer businesses that originate from BA within 4 quarters from the quarter of application.
Spliced Business Formations within 4 Quarters	SBF4Q	Combines (splices) BF4Q and PBF4Q to provide the entire time series for the actual and projected business formations within 4 quarters.
Business Formations within 8 Quarters	BF8Q	The number of employer businesses that originate from BA within 8 quarters from the quarter of application.
Projected Business Formations with 8 Quarters	PBF8Q	The projected number of employer businesses that originate from BA within 8 quarters from the quarter of application.
Spliced Business Formations within 8 Quarters	SBF8Q	Combines (splices) BF8Q and PBF8Q to provide the entire time series for the actual and projected business formations within 8 quarters.

Seasonal Adjustment

Beta

- Processed entirely in R with seasonal package
- Utilized auto-model
- Directly adjusted all states and US totals
- Flexible timeframe for quarterly processing
- No holidays
- Published state and US totals as excel spreadsheets

Experimental Indicator

- R with Win-X-13 annual review
- Hardcoded models
- Indirect adjustment of US total and 4 regions
- About 16 days for all of quarterly processing
- Moving Holiday
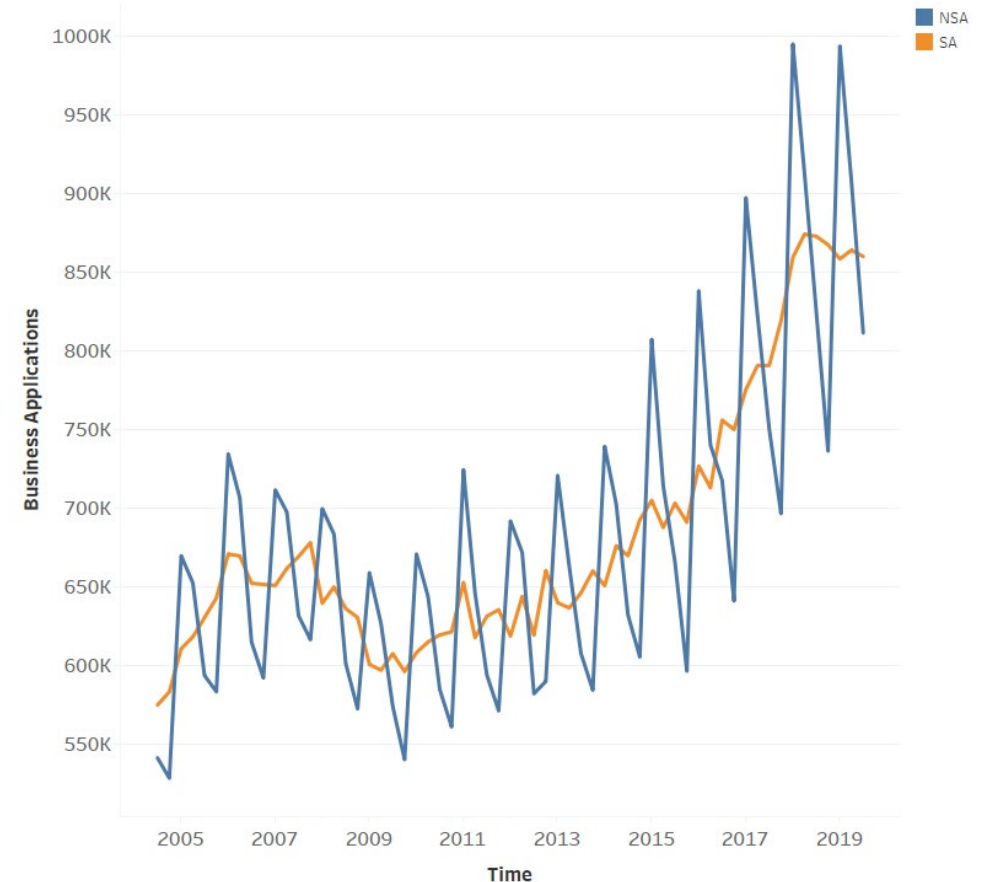- Publish state, region and US total using Tableau data visualizations

What is an experimental data product?

- Experimental data products are statistical products released by the Census that may not meet all of our quality standards, but:

    - would benefit from feedback from users and stakeholders
    - would benefit our data users in the absence of other data
    - would be used to gauge demand before operationalizing

Seasonal Adjustment

- 510 quarterly series: 50 states, plus DC, for each of 10 series

- Concurrently adjusted

- Annual review of all models in Q4

- Directly adjust at the state level and sum to region and US total

US Business Applications

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12

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Quarterly Processing

Data Processing	→	Data Analysis	→	Seasonal Adjustment	→	Data Visualization	→	Dissemination

- Went from 7 weeks to about 16 calendar days, 2-3 days dedicated to seasonal adjustment

- Data processing switched from monthly processing to weekly

Moving Holiday

- IRS Schedule
  - Based on a 52 or 53 (partial) week year
  - Divided into 4 quarters that may not always coincide with calendar year

- Week between Christmas and New Year's
  - Historically low for business applications
  - Sometimes falls in Q4, Q1, or split between the two

December 2007

Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Last week of 2007Q4

January 2008

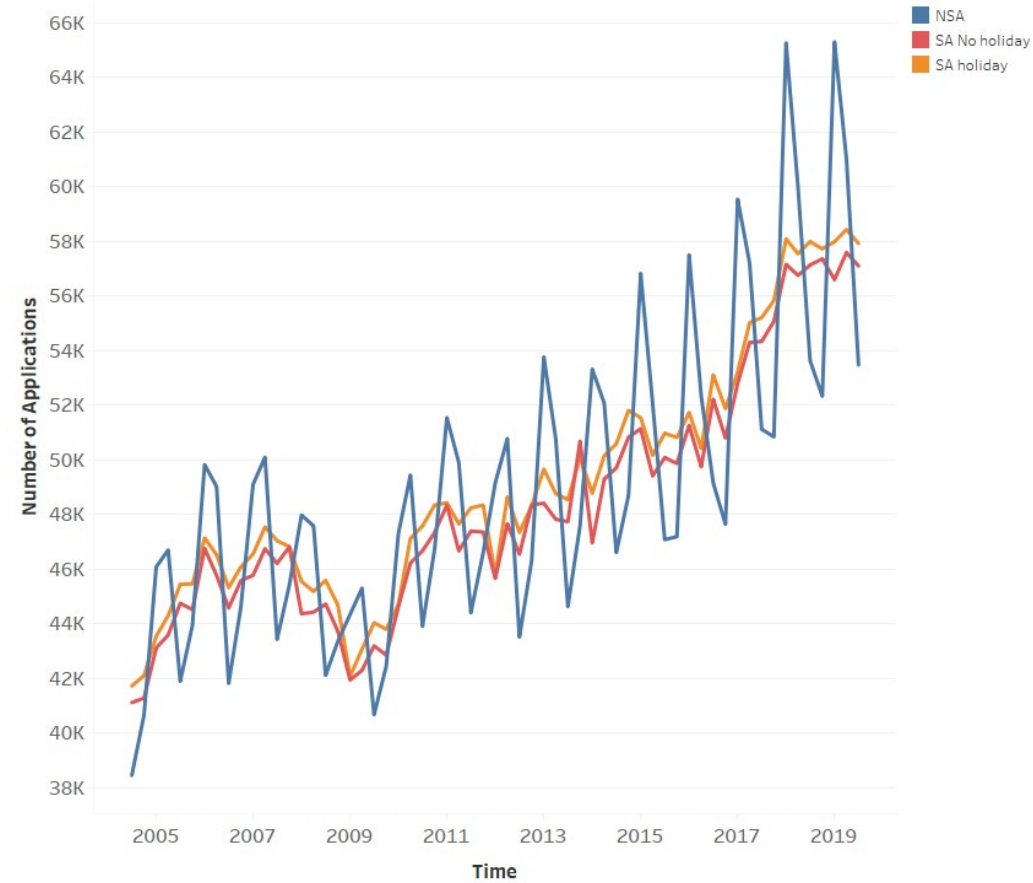| Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Moving Holiday

- Tested for all states and for series: BA, CBA, HBA, WBA

- Significant for some states in all application series

- Will be included in this year's annual revisions, where significant

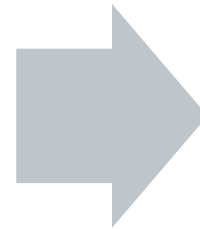| year	q	p
.	.	.
.	.	.
2007	2	0
2007	3	0
2007	4	0.666666667
2008	1	0.333333333
2008	2	0
2008	3	0
.	.	.
.	.	.
.	.	.

Moving Holiday

New York Business Applications

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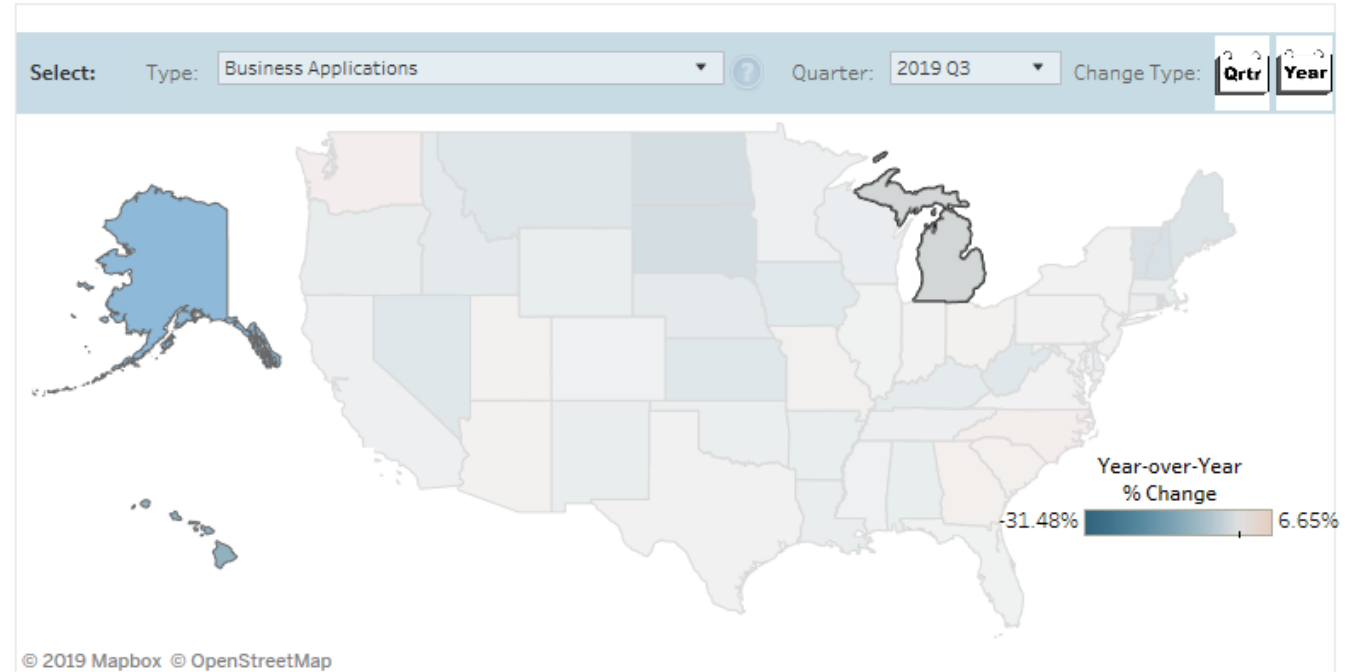- Published state and US totals as excel spreadsheets

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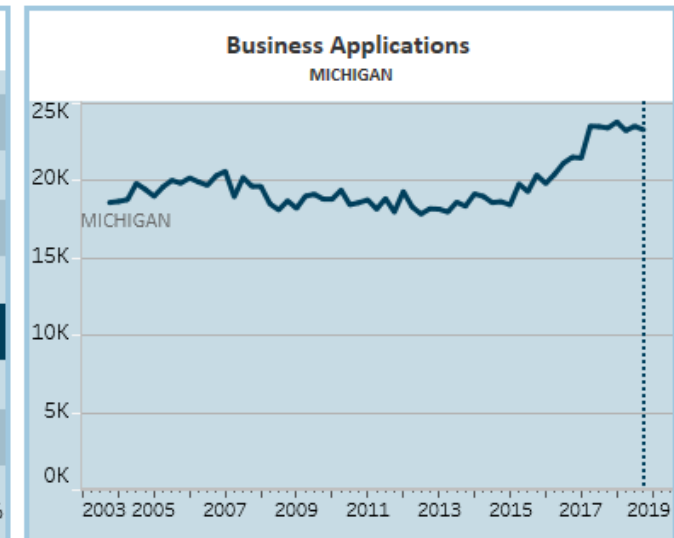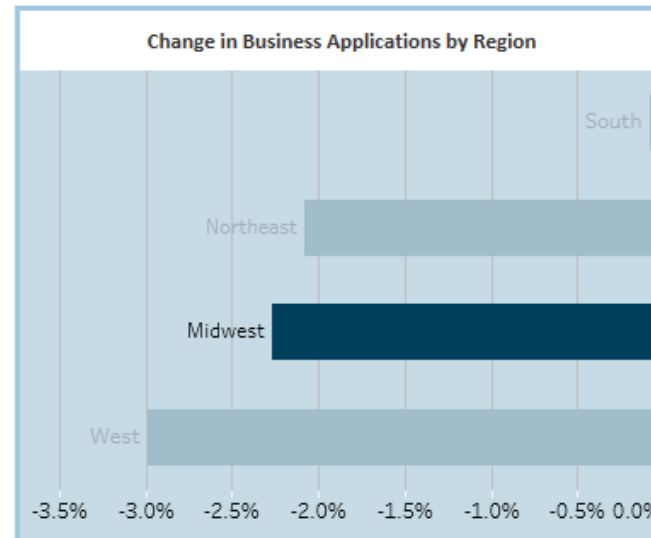- Publish state, region and US total using Tableau data visualizations

- Most popular interactive data visualization of FY19

- Next steps:
  - Industry-level seasonal adjustment
  - County-level data

Business Applications
Year-over-Year Change From 2018 Q3 to 2019 Q3
(Seasonally Adjusted)

Select: Type: Business Applications ▼ (?) Quarter: 2019 Q3 ▼ Change Type: Qrtr | Year

Year-over-Year % Change
-31.48% ▬▬▬▬ 6.65%

© 2019 Mapbox © OpenStreetMap

Overall, the U.S. received 860,125 Business Applications in 2019 Q3. This was a 1.5% decrease from 2018 Q3.

Change in Business Applications by Region

Business Applications
MICHIGAN

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Economic Indicator

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Thank You!

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