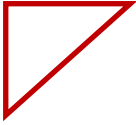


Data Processing
Economic and Business Research Center
(EBRC)
University of Arizona

Daniel Kinneer, CFA



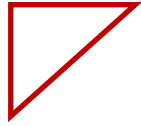
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Outline

- Principles of data management
- Data life cycle
- Adding value to datasets
- Web applications and distribution



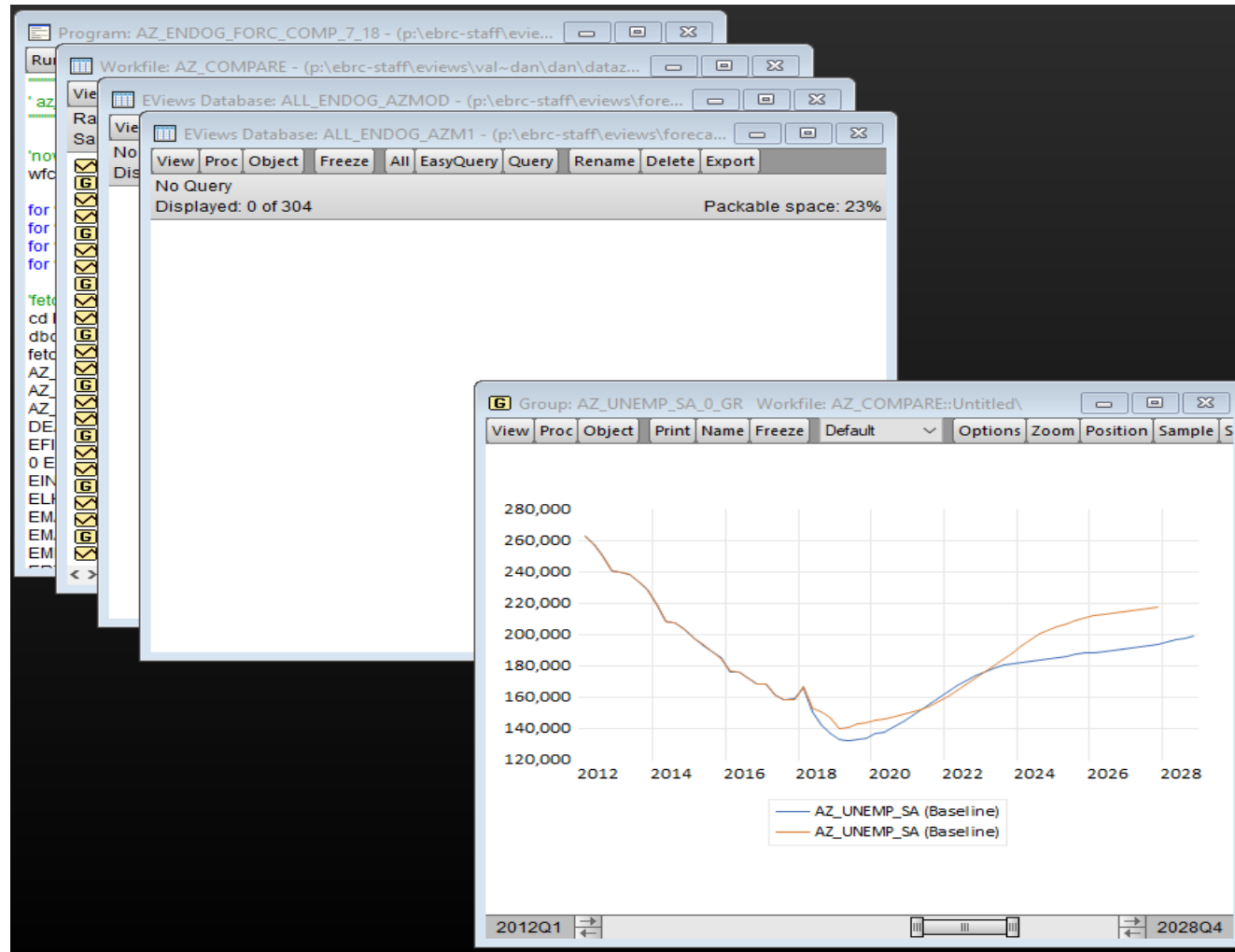


Principles

- Automate and visualize
- Hit by the Bus theory of data management
- Don't confuse information with knowledge



Automate and visualize



Hit by the Bus theory

- Metadata is only the first step
- Programming notes
- Document the process



```
Program: BANKRU_SEASADJ4 - (p:\ebrc-staff\evIEWS\val--dan\dan\bankru_seasadj4.prg)
Run Print Save SaveAs Snapshot Cut Copy Paste InsertTxt Find Replace Wrap+/- LineNum+/- Encrypt
.....
'If necessary, change %qtr to include the last full quarter of data (eg. Data for April 2013 would only need to have %qtr
changed to 2013Q1, the last full quarter of data)
for %qtr 2018q4
next

'If necessary, change %ann to include the last full year of data (eg. Data for April 2013 would only need to have %ann
changed to 2012, the last full year of data)
for %ann 2018
next

'If necessary, change this to the current calendar year
for %calendar 2018
next

THIS PROGRAM DOES THE FOLLOWING
' GENERATES TOTAL BANKRUPTCIES FOR EACH COUNTY, AND FOR ARIZONA FOR EACH TYPE OF BANKRUPTCY
' SEASONALLY ADJUSTS THE DATA WITH TWO METHODS: ADDITIVE AND MULTIPLICATIVE.
' REMOVES THE NEGATIVE VALUES FROM THE _sa AND _tc SERIES
' COPIES THE MONTHLY DATA INTO THE QUARTERLY AND ANNUAL PAGES USING THE FREQUENCY CONVERSION
METHOD sum without propagating NAs
' STORES THE SERIES IN THE MON, QTR, AND ANN DATABASES IN THE STUDENTS FOLDER

-----CLICK ON THE WORKFILE, CLICK RUN ON THE PROGRAM-----

pageselect Q
range 1975 {%qtr}
'SELECTS THE WORKFILE PAGE "Q" AND SETS THE RANGE FROM 1975 UNTIL THE VALUE IN THE VARIABLE %QTR
DEFINED AT THE BEGINNING OF THIS WORKFILE

pageselect A
range 1975 {%ann}
'SELECTS THE WORKFILE PAGE "A" AND SETS THE RANGE FROM 1975 UNTIL THE VALUE IN THE VARIABLE %ANN
DEFINED AT THE BEGINNING OF THIS WORKFILE

pageselect M
```





Information vs. Knowledge

- Nonfarm employment level, Tucson MSA





Information vs. Knowledge

- Nonfarm employment level, Tucson MSA
- Nonfarm employment percentage change year-over-year





Information vs. Knowledge

- Nonfarm employment level, Tucson MSA
- Nonfarm employment percentage change year-over-year
- % change vs. the US

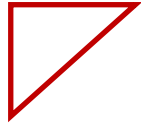




Information vs. Knowledge

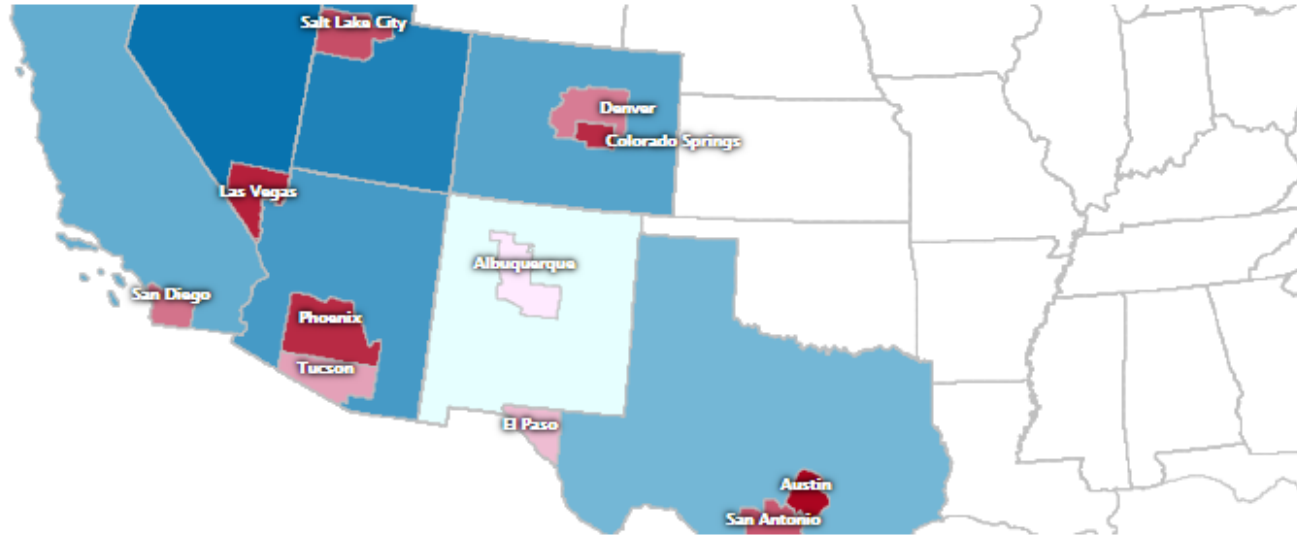
- Nonfarm employment level, Tucson MSA
- Nonfarm employment percentage change year-over-year
- % change vs. the US
- % change vs. similar geographies





Nonfarm Employment Growth

The value for the U.S. was 1.6 in 2017 (Units: Percent)



States Background States Metros Counties

Legend: States | Metros | Counties

States: Growth Rate of Total NonFarm Employment

Min: 0.3

Max: 3.3

x Close

Metros: Growth Rate of Total NonFarm Employment

Min: 0.7

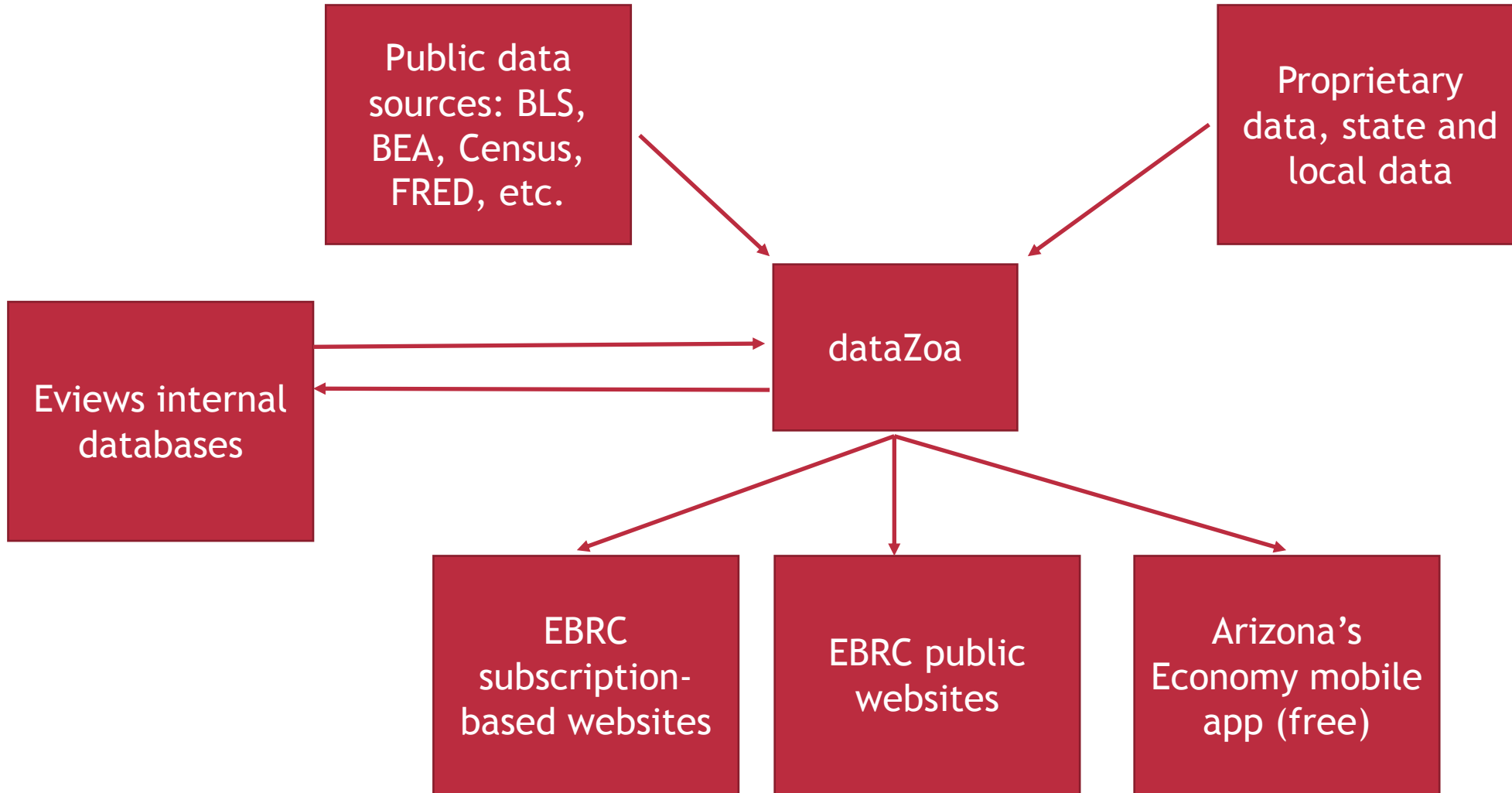
Max: 3.2

x Close



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Data life cycle at EBRC

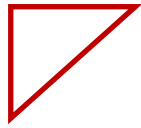


For list: All Series Show only titles like: Filter Go Show page: 1 Go W

Series: Upload Delete Update... Share... Export... GroupLists... Displays: Table... LatestValues... Chart... dataBlock... Widgets... Find on page...

<input type="checkbox"/>			Series title	Freq	Source	Date	Access
<input type="checkbox"/>			All Employees in Federal Government Total, all industries for All establishment sizes in Maricopa County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in State Government Total, all industries for All establishment sizes in Maricopa County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in Local Government Total, all industries for All establishment sizes in Maricopa County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in Federal Government Total, all industries for All establishment sizes in Pinal County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in State Government Total, all industries for All establishment sizes in Pinal County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in Local Government Total, all industries for All establishment sizes in Pinal County, Arizona, NSA	Monthly	data.bls.gov	9/27/2018	
<input type="checkbox"/>			All Employees in Private NAICS 517 Telecommunications for All establishment sizes in New Mexico -- Statewide, NSA	Annual	data.bls.gov	8/29/2018	
<input type="checkbox"/>			All Employees in Private NAICS 517 Telecommunications for All establishment sizes in Texas -- Statewide, NSA	Annual	data.bls.gov	8/29/2018	
<input type="checkbox"/>			All Employees in Private NAICS 517 Telecommunications for All establishment sizes in Arizona -- Statewide, NSA	Annual	data.bls.gov	8/29/2018	
<input type="checkbox"/>			All Employees in Private NAICS 517 Telecommunications for All establishment sizes in California -- Statewide, NSA	Annual	data.bls.gov	8/29/2018	
<input type="checkbox"/>			Department Stores - All Employees, In Thousands - Arizona - Statewide - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	8/27/2018	
<input type="checkbox"/>			General Merchandise Stores, including Warehouse Clubs and Supercenters - All Employees, In Thousands - Arizona - Statewide - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	8/27/2018	
<input type="checkbox"/>			Department Stores - All Employees, In Thousands - Arizona - Tucson, AZ - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	7/24/2018	
<input type="checkbox"/>			General Merchandise Stores, including Warehouse Clubs and Supercenters - All Employees, In Thousands - Arizona - Tucson, AZ - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	7/24/2018	
<input type="checkbox"/>			General Merchandise Stores, including Warehouse Clubs and Supercenters - All Employees, In Thousands - Arizona - Phoenix-Mesa-Scottsdale, AZ - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	7/24/2018	
<input type="checkbox"/>			Department Stores - All Employees, In Thousands - Arizona - Phoenix-Mesa-Scottsdale, AZ - State and Area Employment, Hours, and Earnings - (Not Seasonally Adjusted)	Monthly	data.bls.gov	7/24/2018	
<input type="checkbox"/>			SQ5N Personal Income by Major Component and Earnings by NAICS Industry - Arizona - Personal income (thousands of dollars, seasonally adjusted)	Quarterly	www.bea.gov	1/18/2018	
<input type="checkbox"/>			SQ5N Personal Income by Major Component and Earnings by NAICS Industry - Arizona - Earnings by place of work	Quarterly	www.bea.gov	1/18/2018	
<input type="checkbox"/>			SQ5N Personal Income by Major Component and Earnings by NAICS Industry - Arizona - Less: Contributions for government social insurance	Quarterly	www.bea.gov	1/18/2018	
<input type="checkbox"/>			SQ5N Personal Income by Major Component and Earnings by NAICS Industry - Arizona - Plus: Adjustment for residence	Quarterly	www.bea.gov	1/18/2018	





- Overview
- **Arizona + U.S.**
- Flagstaff MSA
- Lake Havasu-Kingman MSA
- Phoenix-Mesa-Scottsdale MSA
- Prescott MSA
- Sierra Vista-Douglas MSA
- Tucson MSA
- Yuma MSA
- Arizona Counties
- Announcements
- Bankruptcy
- Consumer Confidence
- Copper
- Employment
- Financial Markets + Exchange Rates
- GDP
- Housing Permits + Prices
- Inflation + Prices
- Labor Force + Unemployment

Monthly Summary - Arizona Statewide

Use menu to navigate to detailed data by topic for Arizona

-Select a topic- ▼

Arizona (Statewide) - Monthly Summary	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018
<i>Persons (000s, seasonally adjusted), Local Area Unemployment Statistics, BLS</i>						
Civilian Labor Force	3,355.5	3,364.5	3,370.6	3,373.9	3,373.7	3,375.2
% Chg from Year Ago	2.3%	2.4%	2.4%	2.3%	2.0%	1.8%
Employment	3,191.9	3,200.1	3,206.8	3,214.3	3,216.7	3,219.8
% Chg from Year Ago	2.6%	2.6%	2.5%	2.5%	2.2%	1.9%
Unemployment	163.6	164.5	163.8	159.6	157.0	155.5
% Chg from Year Ago	-2.9%	-1.4%	-0.4%	-1.2%	-1.1%	-0.8%
Unemployment Rate	4.9	4.9	4.9	4.7	4.7	4.6
<i>Employees on Nonagricultural Payrolls (000s, seasonally adjusted), Current Employment Statistics, BLS</i>						
Total	2,813.4	2,818.4	2,825.9	2,837.4	2,838.6	2,843
% Chg from Year Ago	2.35%	2.29%	2.32%	2.61%	2.30%	2.31%
Total Private	2,401.4	2,406.8	2,413.1	2,423.6	2,423.4	2,427.4
% Chg from Year Ago	2.79%	2.74%	2.74%	3.04%	2.66%	2.69%
Government	412.0	411.6	412.8	413.8	415.2	415.6
% Chg from Year Ago	-0.17%	-0.29%	-0.05%	0.17%	0.22%	0.10%
<i>Earnings (\$, not seasonally adjusted), Current Employment Statistics, BLS</i>						
Avg. Hourly Earnings (Private Sector)	25.68	25.45	25.57	25.59	25.46	25.75
% Chg from Year Ago	2.60%	3.08%	1.23%	2.36%	2.91%	1.22%
<i>Sales (\$ mil accrual), EBRC</i>						
Aggregate Retail Sales*	8,323.9	9,619.6	8,755.2	9,061.9	8,803.4	
% Chg from Year Ago	6.7%	9.5%	4.8%	7.0%	6.4%	
<i>New Residential Permits Issued (units), C-40 Program, U.S. Bureau of the Census</i>						

