



**ARIZONA-MEXICO ECONOMIC INDICATORS**

**Arizona's Trade and Competitiveness  
in the U.S.-Mexico Region**

A blue silhouette map of the United States and Mexico. The state of Arizona is highlighted with a red outline. A blue arrow points from the left side of the map towards the Arizona outline.

**Annual Report  
2019**

PREPARED BY  
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Arizona-Mexico Economic Indicators Annual Report 2019

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## Special thanks to:

Karin Jimenez, Director of External Affairs, Arizona-Mexico Commission  
Gail Lewis, Director P3 Initiatives and International Affairs, Arizona Department of Transportation  
Luis Ramirez Thomas, President, Ramirez Advisors Inter-National, LLC  
Kari Roberg, Research Manager, Arizona Office of Tourism  
Marisa Walker, Senior Vice President, Strategic Planning/Infrastructure, Arizona Commerce Authority

May 17, 2019 · Tucson, Arizona



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## Purpose of Arizona-Mexico Economic Indicators

Since December 2014, the Economic and Business Research Center at the University of Arizona's Eller College of Management, in collaboration and with financial support from four of Arizona's leading economic development organizations – Arizona-Mexico Commission, Arizona Commerce Authority, Arizona Department of Transportation, and Arizona Department of Tourism – has maintained the Arizona-Mexico Economic Indicators at [AZMEX.eller.arizona.edu](http://AZMEX.eller.arizona.edu). These online indicators monitor Arizona's trade and competitiveness in the U.S.-Mexico region across a range of key economic categories such as Arizona's trade, border crossings, commodity flows through border ports of entry, and economic trends in Mexico.

While designed primarily to meet the needs of organizations engaged with improving Arizona's trade and competitiveness, the AZMEX website has also proved to be a useful tool for citizens, business leaders, and public sector decision makers interested in the unique opportunities the border region has to offer. The project's overarching theme is that presentation of the most up-to-date factual knowledge on the region will enhance understanding and appreciation of the importance of Arizona's economic relationships with Mexico.

## Connection with previous reports

The original set of regional economic indicators focusing on the Arizona-Sonora Region was compiled by the University of Arizona in 2000 under the auspices of the Arizona-Mexico Commission and in collaboration with several institutions in Sonora, Mexico. The last report in this series was completed in 2009 and is available in pdf format on our website at [ebr.eller.arizona.edu](http://ebr.eller.arizona.edu). While some core indicator groups have been retained from these previous studies, the emphasis and scope of the AZMEX website and this report has been broadened in response to the changing economic landscape, as well as interest on the part of many Arizonans in extending their understanding of economic relationships with Mexico beyond Sonora.

## About this Annual Report

This is the fifth annual report produced by the Arizona-Mexico Economic Indicators project. While the AZMEX website is a dynamic tool providing access to the most recent data at any time, the *Annual Report* is prepared as a detailed profile of Arizona's trade and competitiveness in the U.S.-Mexico region relative to other border states on an annual basis. By taking a "snapshot" of these indicators at a single point in time, the *Annual Report* provides a benchmark for year-over-year comparisons, and for evaluating major changes within each indicator group as well as across sections. The focus of the *Annual Report* is to show where Arizona stands relative to previous periods, and equally important, how Arizona's progress compares to other border states.



The *Annual Report* is organized into the following sections: Population, Economic Output, Exports to Mexico, Exports to Canada, Border Crossings, Commodity Flows, Export-Based Economy, Knowledge-Based Economy, and Foreign Direct Investment. Each section describes the significance of relevant indicators and highlights important changes and trends. In addition, charts illustrating trends and comparisons are presented. Directly following the “Introduction” is a “Highlights” section which provides readers with a quick scan of important changes as they pertain to Arizona.

## Methodology

Indicators are presented in respective units of measurement, such as dollar value of exported merchandise, number of vehicles and passengers crossing the border, or as percentages of totals. To facilitate the comparison of trends with other border states, the latest decade of data is provided wherever possible, the numbers are indexed with the first year in the series serving as a base year, e.g., year 2008=100. This method allows for easy visual comparison of relative change, especially in situations when units such as states or volume of trade through border ports of entry differ greatly in absolute size. Arizona’s competitiveness in the U.S.-Mexico region relative to other border states is represented by a simple proxy measure of percentage share with a focus on change between two specified periods.

All calculations of change and percentage change are performed using the largest number of digits of accuracy available. This means that in a few instances in this report the reader may obtain slightly different numbers for differences and percentage change if they perform the calculations using the figures from some tables which have been rounded. Should the reader have any questions concerning computations, please contact the authors at [akim@eller.arizona.edu](mailto:akim@eller.arizona.edu).

## The Data

Most of the datasets used in this report are subject to revision during the year. Some revisions affect three to five years of data, or more. This report was compiled and calculations made during May of 2019. Please note, this work was done prior to revisions to the trade data which typically occur sometime in June of each year. The reader can always access the most recently revised data on the [AZMEX.eller.arizona.edu](http://AZMEX.eller.arizona.edu) website. All data presented in this report are updated on the website as revisions and new data are released.



## Arizona and Mexico: Economic Relationship, 2008 - 2018



### TRADE and CROSS-BORDER COMMODITY FLOWS

Arizona exported to Mexico **\$7.7 billion** worth of goods in 2018. (↑**29.4%** from 2008; ↑**1.0%** from a year ago); Arizona's manufacturing exports accounted for **\$6.1 billion** (↑**22.1%** from 2008; ↑**1.7%** from a year ago); US EXPORTS to Mexico via Arizona BPOE reached **\$11.2 billion** in 2018 (↑**40.2%** from 2008; ↑**2.1%** from a year ago), of which **\$3.2 billion** worth were electric and electronic products (↑**62.8%** from 2008; ↑**1.8%** from a year ago), and **\$1.3 billion** were transportation products (↑**4.6%** from 2008; ↓**11.9%** from a year ago). US IMPORTS from Mexico via AZ BPOE were worth **\$16.4 billion** in 2018 (↑**20.2%** from 2008; ↓**2.9%** from a year ago), of which electric & electronic products accounted for **\$3.5 billion** (↑**19.5%** from 2008; ↑**3.3%** from a year ago), while transportation products accounted for **\$4.7 billion** (↓**7.3%** from 2008; ↓**14.5%** from a year ago). In 2018, US imported **\$3.1 billion** worth of fresh produce from Mexico via AZ BPOE (↑**34.9%** from 2008; ↑**2.8%** from a year ago).

### BORDER CROSSINGS

Personal and commercial VEHICLES: In 2018, **9,334,650** personal cars entered from Mexico via Arizona BPOE (↑**20.7%** from 2008; ↓**1.6%** from year ago); in the same year, **396,489** trucks from Mexico entered via AZ BPOE (↑**5.5%** from 2008; ↓**0.9%** from year ago); **12,793** buses (↓**18.3%** from 2008; ↓**4.8%** from year ago), and **737** trains (↑**15.2%** from 2008; ↑**13.6%** from year ago). PERSONAL crossings: Passengers in personal vehicles made **17,781,150** crossings northbound in 2018 (↓**5.3%** from 2008; ↓**2.0%** from year ago); **7,110,476** crossings were done on foot (↓**33.1%** from 2008; ↑**1.5%** from 2017).

## Arizona and Mexico: Economic Relationship, 2008 - 2018



### ARIZONA BORDER PORTS of ENTRY (BPOE)

In 2018, Arizona BPOE facilitated **24.0%** of all imported FRESH PRODUCE from Mexico through southern BPOE (↓ from **44.7%** in 2008; ↓ from **24.2%** in 2017); **5.6%** of US EXPORTS of electric and electronic products to Mexico through southern BPOE (↓ from **6.4%** in 2008; ↓ from **5.8%** in 2017); **5.5%** of all US IMPORTS from Mexico through southern BPOE (↓ from **8.6%** in 2008; ↓ from **6.2%** in 2017); **5.2%** of all US EXPORTS to Mexico through southern BPOE (↓ from **6.4%** in 2008; ↓ from **5.5%** in 2017); **4.1%** of US IMPORTS of transportation products from Mexico through southern BPOE (↓ from **10.8%** in 2008; ↓ from **5.2%** in 2017); **3.8%** of US EXPORTS of transportation products to Mexico through southern BPOE (↓ from **6.4%** in 2008; ↓ from **4.5%** in 2017), and **3.6%** of US IMPORTS of electric and electronic products from Mexico through southern BPOE (↓ from **4.8%** in 2008; ↓ from **3.8%** in 2017).

### ARIZONA'S SHARE of U.S. BORDER STATES

EXPORTS to MEXICO: **Arizona** accounted for **5.1%** of US border states' exports to Mexico (↓ from **6.7%** in 2008; ↓ from **5.7%** in 2017); and **4.4%** of all manufacturing products exported to Mexico from US border states in 2017 (↓ from **6.0%** in 2008; ↓ from **4.8%** in 2017). EXPORT-BASED ECONOMY: **Arizona's share** of US border states' EMPLOYMENT in aerospace products and parts manufacturing was **18.6%** (↓ from **18.9%** in 2008; ↑ from **18.2%** in 2017); **7.9%** of the total computer and electronic manufacturing employment (↓ from **9.0%** in 2008; ↔ from 2017); In 2017, **7.2%** of US border states' high-tech manufacturing employees (↓ from **8.1%** in 2007; ↓ from **7.3%** in 2016), and **3.8%** in pharmaceutical and medicine product manufacturing (↑ from **2.0%** in 2007; ↑ from **3.5%** in 2016).

## Arizona and Mexico: Economic Relationship, 2008 - 2018



### IMMEX EMPLOYMENT in MEXICO'S BORDER STATES

In 2018, **Sonora** was home to **128,825** workers employed in **IMMEX** (maquiladora and other export-oriented manufacturing and services sectors) (↑ from **35.0%** from **95,438** in 2008; ↓ **0.3%** from **129,249** in 2017). Sonora's share of IMMEX employment in Mexico's border states was **7.8%** in 2018 (↓ from **8.3%** in 2008; ↓ from **8.1%** in 2017).

### FOREIGN DIRECT INVESTMENT

In 2018, **\$80.8 million** was invested in **Sonora** (↓ **94.9%** from \$1.6 billion in 2008; ↓ **68.1%** from \$253.5 million in 2017). Sonora's percent share of **Mexican border states' total FDI** in 2018 was **0.7%** (↓ from **17.5%** in 2008; ↓ from **2.5%** in 2017).



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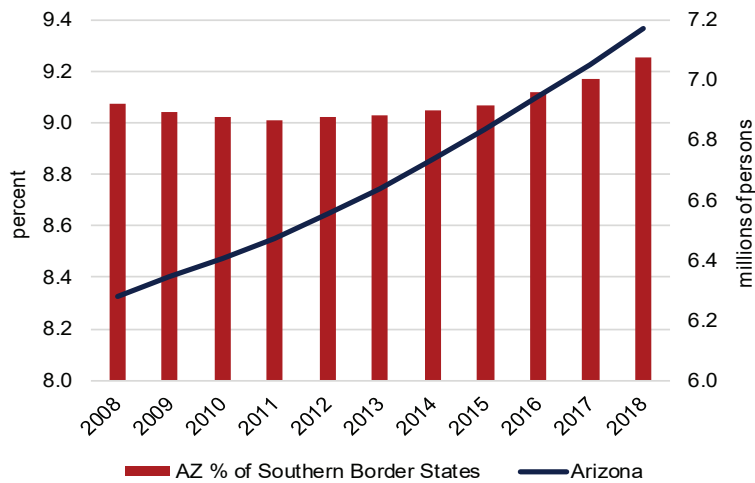
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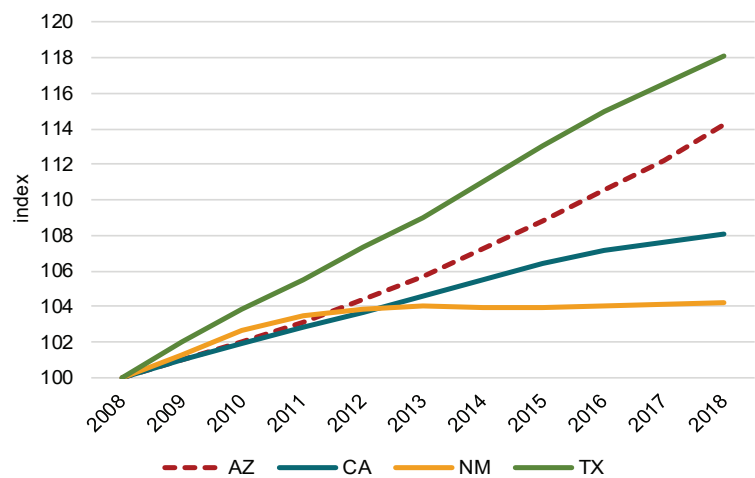
# POPULATION

Figure 1: Arizona Population



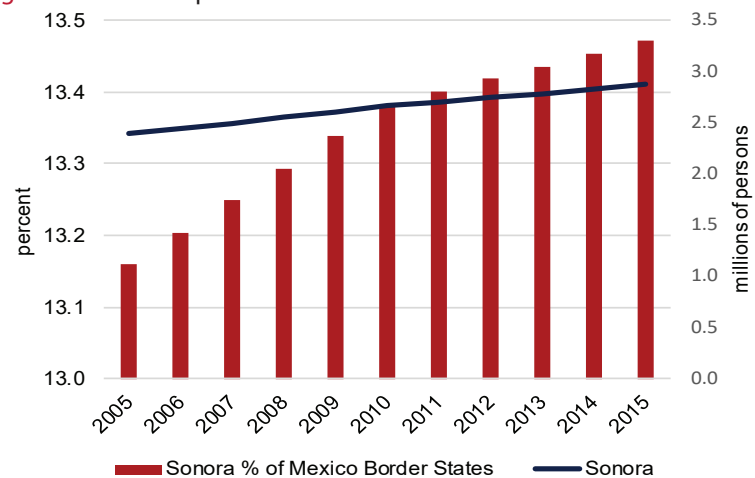
Source: U.S. Census Bureau

Figure 2: U.S. Border States Population (2008=100)



Source: U.S. Census Bureau

Figure 3: Sonora Population



Source: INEGI and EBRC

Population growth is an indicator of the attractiveness of a region for businesses and people. Age composition provides insight into the relationship between working and dependent populations.

## Arizona's Population

Arizona's annual population growth rate in 2018 was 1.7%. This was the fastest growth among the border states, just ahead of Texas at 1.3%, followed by California at 0.4% and New Mexico at 0.1%. The nation's population grew 0.6% in 2018. Arizona's population grew 14.2% over the decade (2008 to 2018), adding 891,284 persons. Texas grew 18.1% in the same period, followed by California (8.1%), and New Mexico (4.2%). Arizona's share of the total population for the border states began the decade at 9.1% and finished at 9.3% (Figures 1 & 2).

## Sonora's Population

The latest estimates available for Mexico's northern border states are from Mexico's Encuesta Intercensal 2015. These show Sonora's population reached almost 2.9 million persons in 2015, an increase of 1.5% from 2014, and a 20.0% gain over the decade (2005 to 2015) (Figure 3).

## Age Distribution for Sonora and Arizona Populations

The most recent year for which we have comparable population estimates for both U.S. and Mexican border states is 2015. In that year, 16.2% of Arizona's population was 65 years and older, a 3.2 percentage point increase over the decade (2005 to 2015). Over-65 age cohorts



for the other border states and the U.S. as a whole also increased; however, Arizona had the highest share (Figure 4).

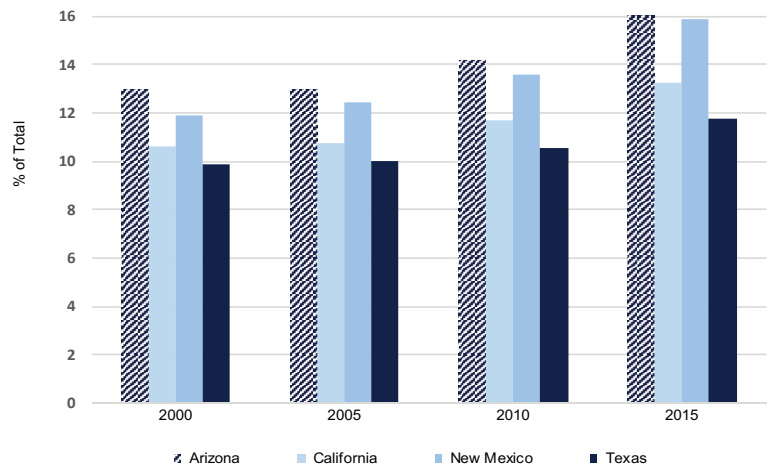
Arizona's under-15 population share was 19.7% in 2015, higher than the nation (19.0%). Between 2010 and 2015, Arizona's under-15 age cohort fell behind New Mexico's (19.9%). Among border states, Texas had the largest under-15 share at 22.0% and California had the smallest at 19.4% (Figure 5). While all four border states have larger shares of population under 15 years old than the nation, Figures 4 and 5 illustrate the overall aging of the population.

In 2015, 27.5% of Sonora's population was under 15 years old. Although Mexico's border states have higher under-15 shares than the U.S., long term trends show Mexico's population is also aging. Between 2005 and 2015, the under-15 share in Mexico's border states declined between 1.8 and 3.2 percentage points; declines in the U.S. ranged between 1.0 and 2.2 percentage points (Figure 6).

## How does Arizona compare?

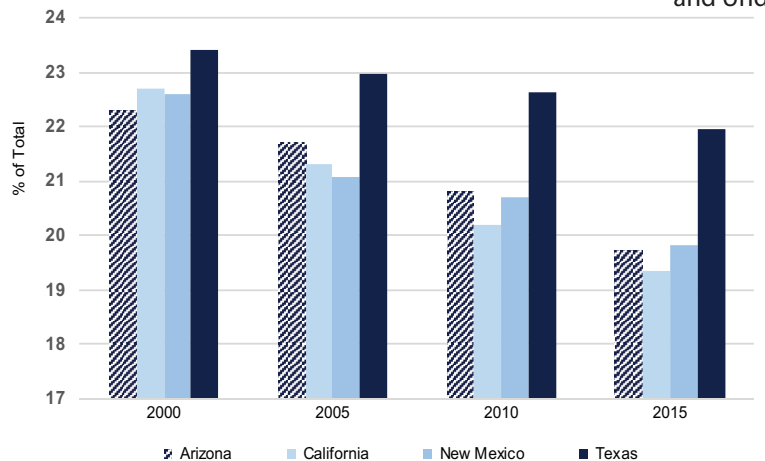
- ▶ In 2018, Arizona had the fastest population growth of U.S. border states (1.7%).
- ▶ 2008-2018: Arizona had the second fastest population growth (14.2%); among U.S. border states, behind only Texas (18.1%), and ahead of California (8.1%).
- ▶ 2005-2015: Both Mexican and U.S. border states exhibit similar aging of their populations long term.

Figure 4: U.S. Border States Population 65 Years and Over



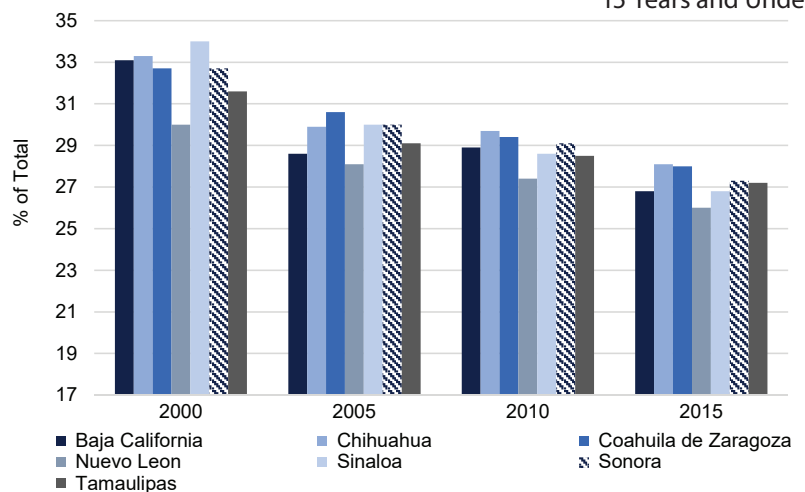
Source: ACS, U.S. Census Bureau

Figure 5: U.S. Border States Population 15 Years and Under



Source: ACS, U.S. Census Bureau

Figure 6: Mexican Border States & Sinaloa Population 15 Years and Under



Source: INEGI Banco de Informacion and INEGI Encuesta Intercensal 2015

# ECONOMIC OUTPUT ◀ ◀ ◀

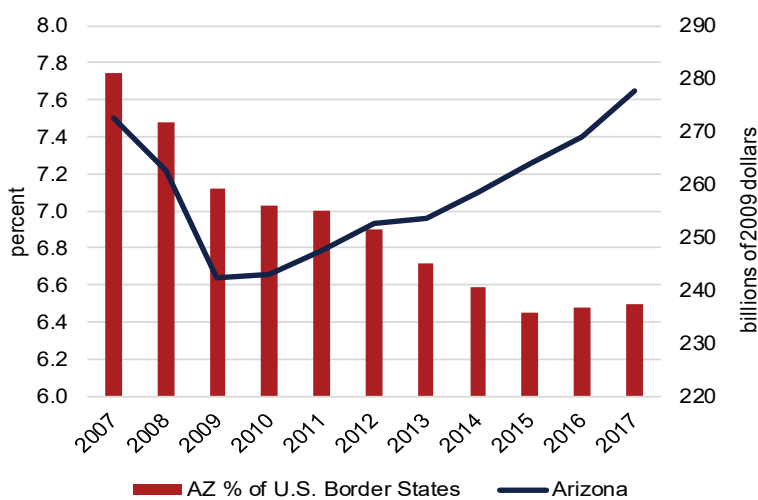
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**Table 1:** U.S. Border States Real GDP (billions of 2009 dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2007	272.4	2.5	1999.3	1.2	81.0	0.2	1166.7	4.9
2008	262.5	-3.6	1993.2	-0.3	82.9	2.3	1173.7	0.6
2009	242.5	-7.6	1912.1	-4.1	82.8	0.0	1166.5	-0.6
2010	243.1	0.2	1936.5	1.3	83.2	0.4	1197.0	2.6
2011	247.4	1.8	1962.9	1.4	83.5	0.3	1240.1	3.6
2012	252.5	2.1	2013.6	2.6	83.5	0.1	1310.5	5.7
2013	253.7	0.5	2064.5	2.5	82.7	-1.0	1377.1	5.1
2014	258.4	1.8	2150.7	4.2	84.9	2.7	1425.3	3.5
2015	263.8	2.1	2249.7	4.6	86.3	1.6	1488.0	4.4
2016	269.0	2.0	2317.5	3.0	86.2	-0.1	1481.9	-0.4
2017	277.7	3.2	2386.4	3.0	86.9	0.8	1521.0	2.6

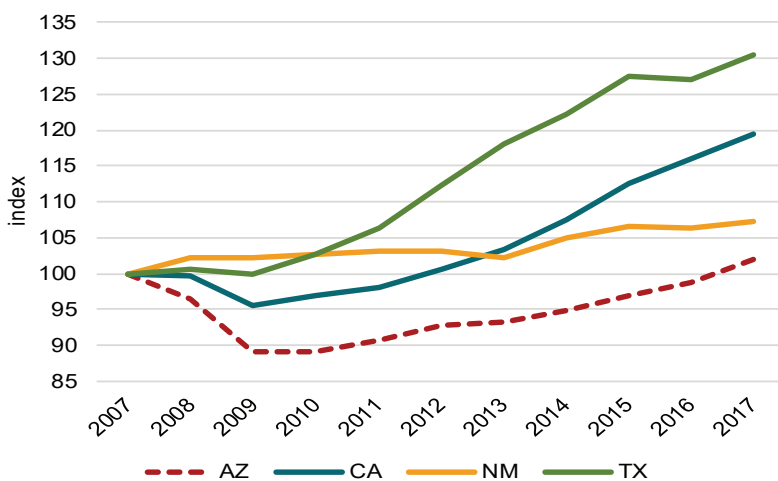
Source: U.S. Bureau of Economic Analysis

**Figure 7:** Arizona Real GDP (2009 dollars)



Source: U.S. Bureau of Economic Analysis

**Figure 8:** U.S. Border States Real GDP (2007=100)



Source: U.S. Bureau of Economic Analysis and EBRC

**G**ross domestic product (GDP) is the total output of a country or a state produced in a year. It is a direct measure of the size of an economy. Per capita GDP is useful as a measure of relative performance. A rise in per capita GDP signals growth in the economy.



## Arizona Real Gross Domestic Product

The most recent annual data for real GDP by state is for 2017. At 3.2%, Arizona's annual real GDP growth out paced the nation (2.1%) and all the border states. New Mexico had the slowest GDP growth at 0.8%, while Texas grew 2.6% and California 3.0%. In 2017, Arizona gained back all of the ground lost during the Great Recession (Table 1).

Arizona's share of real GDP among the border states was stable in 2017 at 6.5%. Its share was 7.7% in 2007 (Figure 7).

In 2017, Arizona exceeded its pre-recessionary level by 1.9%, while Texas led at 30.4% above its 2007 level, followed by California (19.4%), and New Mexico (7.3%). The nation surpassed its 2007 value by 13.0% (Figure 8).

In 2017, Arizona's real per capita GDP was 10.4% below its 2007 level, and was the lowest real GDP per capita among southern border states, falling behind even New Mexico (Figure 9). Over the decade, Texas' real per capita GDP grew



9.8%, followed by California (9.4%), and New Mexico (2.3%). For the nation overall per capita GDP grew 4.5% over the decade 2007-2017.

## Sonora Real Gross State Product

In 2017, Sonora's real GDP was 572,382 million pesos (constant 2013 pesos), an increase of 0.8% from 2016. Sinaloa's real GDP grew 0.7%, and Mexico's real GDP grew 2.0%. Over the decade (2007-2017), Sonora's real GDP grew 31.5%, followed by 25.8% for Sinaloa. Mexico's real GDP grew 21.8% (Figure 10).

The latest population estimates we have for Mexican states are from 2015, thus per capita GDP numbers are calculated for 2015 (rather than for 2017). In 2015, Sonora's real per capita GDP was 135.3% of Mexico's national per capita real GDP, and the second highest per capita real GDP among Mexican border states (Figure 11). Nuevo León had the highest per capita GDP estimate in the border states group.

## How does Arizona Compare?

- ▶ Arizona's real GDP and real GDP per capita exhibit slower post-recession recovery than other border states.
- ▶ Sonora's real GDP per capita has followed a similar trend to Mexico, but it is consistently higher than national levels.
- ▶ Sonora's post recession growth in real GDP is much faster than for Mexico as a whole.

Figure 9: Arizona and U.S. Border States Real GDP/capita (constant 2009 dollars)

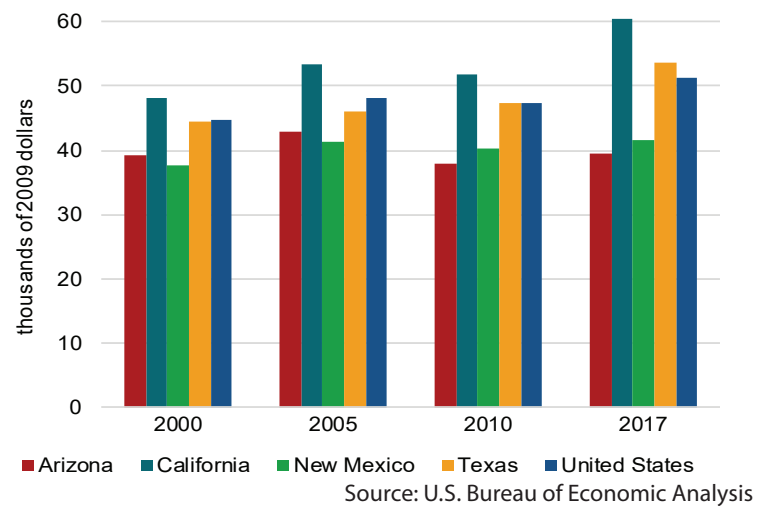


Figure 10: Real GDP Sonora, Sinaloa, and Real GDP Mexico (2007=100)

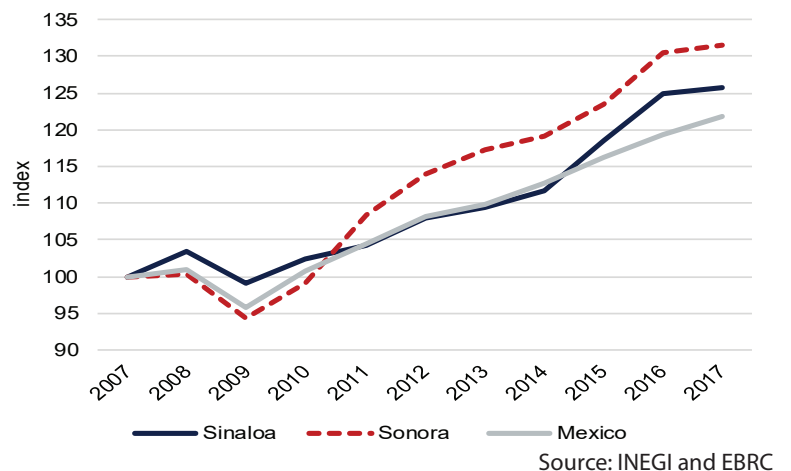
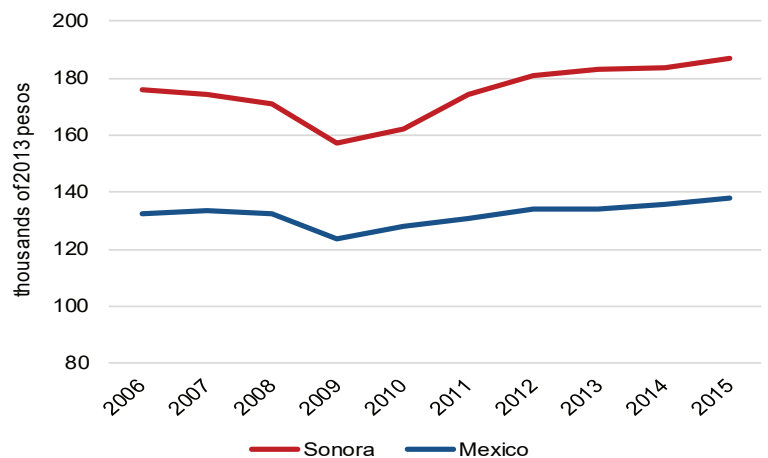


Figure 11: Sonora Real GDP/capita and Mexico Real GDP/capita (constant 2013 pesos)



# EXPORTS TO MEXICO



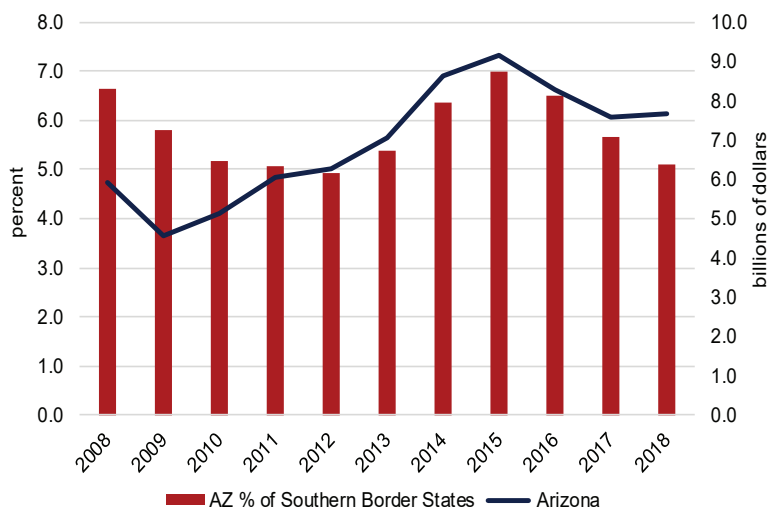
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**Table 2:** U.S. Border States Exports to Mexico (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	5.91	12.9	20.47	11.6	0.38	2.3	62.09	10.9
2009	4.55	-23.1	17.47	-14.6	0.38	0.0	56.04	-9.7
2010	5.14	12.9	20.95	19.9	0.43	11.7	72.69	29.7
2011	6.04	17.7	25.83	23.3	0.46	8.2	87.19	19.9
2012	6.29	4.1	26.38	2.1	0.59	27.6	94.43	8.3
2013	7.07	12.4	23.91	-9.4	0.80	35.1	99.26	5.1
2014	8.62	22.0	25.45	6.4	1.55	93.3	100.10	0.8
2015	9.16	6.2	26.79	5.3	1.68	8.7	93.10	-7.0
2016	8.29	-9.6	25.26	-5.7	1.56	-7.5	92.04	-1.1
2017	7.58	-8.6	26.77	6.0	1.59	2.0	97.70	6.2
2018	7.65	1.0	30.74	14.8	1.42	-10.6	109.75	12.3

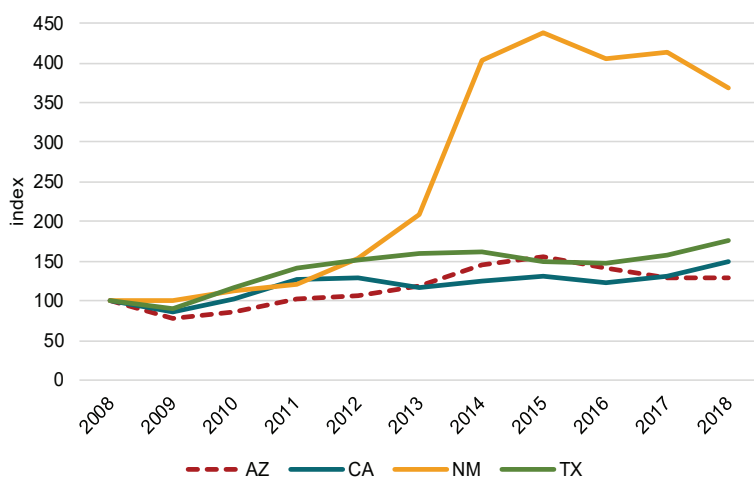
Source: U.S. Census Bureau

**Figure 12:** Arizona Exports to Mexico



Source: U.S. Census Bureau

**Figure 13:** U.S. Border States Exports to Mexico (2008=100)



Source: U.S. Census Bureau

**M**exico is Arizona's number one trade partner. The dynamics of Arizona's exports to Mexico provide a composite measure of both Arizona's integration in the U.S.-Mexico production sharing system, as well as Arizona's competitive position in Mexico's consumer markets.



## Exports to Mexico

Arizona's exports to Mexico grew 1.0% in 2018, increasing to \$7.65 billion and accounting for 34.2% of the state's exports worldwide. However, other border states had double digit export growth in 2018. Exports to Mexico grew 14.8% for California, 12.3% for Texas, and 8.9% for the U.S. overall. New Mexico was the only border state with negative growth at -10.6% (Table 2). Arizona's exports worldwide increased 7.0%, while exports grew 12.8% for the southern border states combined, and 7.6% for the U.S. overall in 2018.

Arizona's exports to Mexico increased steadily between 2009 and 2015. Arizona's percent share of southern border states' exports to Mexico peaked at 7.0% in 2015, and declined to 5.1% in 2018 (Figure 12).

Arizona exports to Mexico grew 29.4% between 2008 and 2018. Arizona's export growth was behind all other southern border states with California at 50.1%, Texas at 76.8%, and the nation overall at 75.2%. New Mexico's exports to Mexico, still small in volume, grew 269.2% over the decade (Figure 13).



# EXPORTS TO MEXICO

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## Manufacturing Exports to Mexico

The value of Arizona's manufacturing exports to Mexico increased slightly from \$6.0 billion in 2017 to \$6.1 billion in 2018, a 1.7% gain. All but one border state experienced increases in this important sector in 2018. Texas exported the largest dollar value of manufacturing products to Mexico at \$103.3 billion (up 12.3%), followed by California with \$29.5 billion (up 15.6%). New Mexico was last with \$1.4 billion (down 12.1%) (Table 3).

Arizona's manufacturing exports to Mexico accounted for 80.0% of the total value of its exports to Mexico in 2018. After double digit growth in 2014 and 2015, Arizona's manufacturing exports have been flat since 2016. Arizona's share of border states manufacturing exports to Mexico declined from 4.8% in 2017 to 4.4% in 2018 (Figure 14).

Between 2008 and 2018, Arizona experienced 22.1% growth in this sector, behind California's 52.2%, and Texas' 75.7%. New Mexico, which has by far the smallest dollar volume of trade, experienced 279.4% growth over the decade (Figure 15).

### How does Arizona compare?

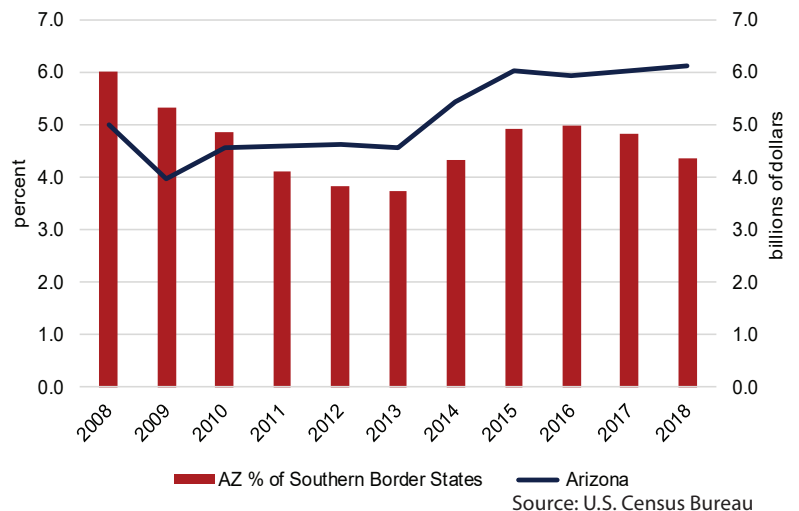
- ▶ In 2018, Arizona reversed two years of decline and had 1.0% positive growth in total exports to Mexico.
- ▶ 2008-2018: Arizona's manufacturing exports to Mexico increased 22.1%, the smallest decade growth among the border states.

Table 3: Manufacturing Exports to Mexico (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	5.01	2.3	19.36	10.9	0.36	5.9	58.77	9.9
2009	3.96	-20.9	16.57	-14.4	0.36	-0.3	53.53	-8.9
2010	4.55	14.7	19.86	19.9	0.41	14.7	68.85	28.6
2011	4.58	0.7	24.65	24.1	0.44	8.7	82.02	19.1
2012	4.62	0.9	25.07	1.7	0.54	21.4	90.16	9.9
2013	4.57	-0.9	22.48	-10.3	0.65	21.3	94.50	4.8
2014	5.45	19.1	23.93	6.4	1.45	122.0	94.78	0.3
2015	6.01	10.5	25.53	6.7	1.64	13.3	88.88	-6.2
2016	5.94	-1.2	24.01	-5.9	1.52	-7.8	87.49	-1.6
2017	6.02	1.3	25.49	6.2	1.54	1.6	91.95	5.1
2018	6.12	1.7	29.48	15.6	1.35	-12.1	103.27	12.3

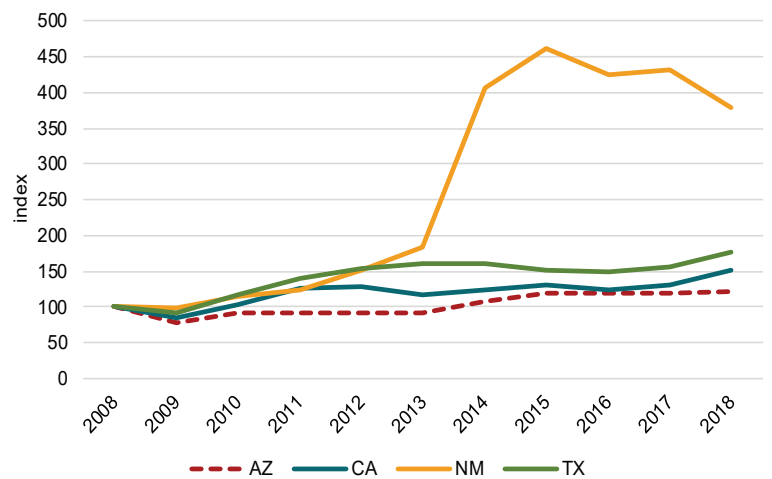
Source: U.S. Census Bureau

Figure 14: Arizona Manufacturing Exports to Mexico



Source: U.S. Census Bureau

Figure 15: U.S. Border States Mfg. Exports to Mexico (2008=100)



Source: U.S. Census Bureau

# EXPORTS TO CANADA

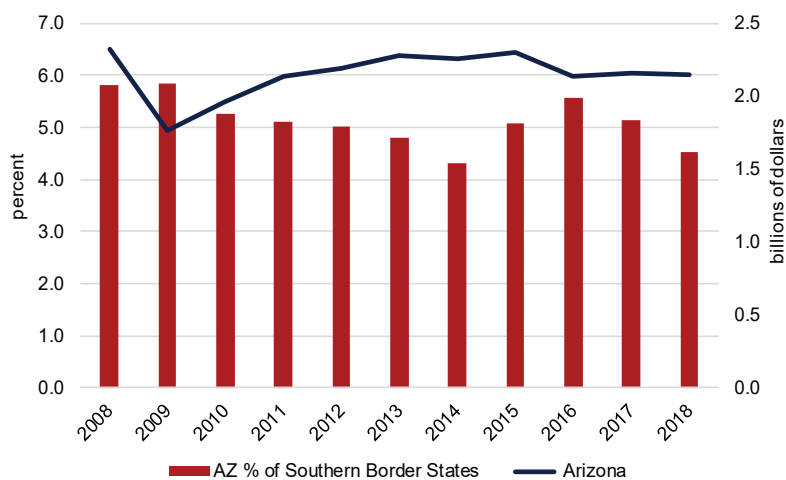
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**Table 4:** Exports to Canada (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	2.32	5.8	17.85	9.7	0.34	44.4	19.38	14.7
2009	1.76	-24.0	14.31	-19.8	0.25	-28.0	13.80	-28.8
2010	1.96	11.4	16.21	13.3	0.28	14.9	18.76	35.9
2011	2.14	8.8	17.26	6.5	0.35	24.1	22.12	17.9
2012	2.19	2.8	17.42	0.9	0.33	-6.8	23.86	7.8
2013	2.27	3.6	18.88	8.4	0.29	-12.0	26.05	9.2
2014	2.25	-0.9	18.33	-2.9	0.23	-19.8	31.38	20.4
2015	2.30	2.2	17.26	-5.9	0.19	-18.7	25.51	-18.7
2016	2.14	-7.2	16.23	-6.0	0.14	-26.3	19.97	-21.7
2017	2.15	0.7	16.84	3.8	0.13	-8.4	22.90	14.7
2018	2.15	-0.3	17.75	5.4	0.12	-8.4	27.44	19.8

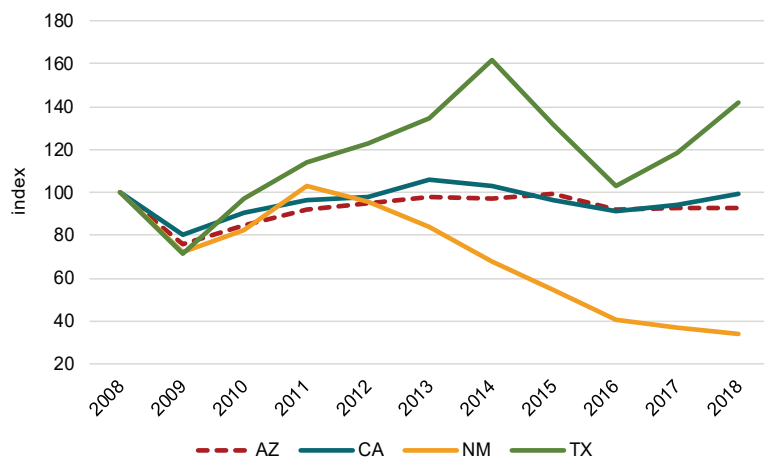
Source: U.S. Census Bureau

**Figure 16:** Arizona Exports to Canada



Source: U.S. Census Bureau

**Figure 17:** U.S. Border States Exports to Canada (2008=100)



Source: U.S. Census Bureau

Although Arizona's exports to Canada form a smaller share than exports to Mexico, they are significant as an important driver of regional economic activity. The dynamics of Arizona's exports to Canada provide a composite measure of both Arizona's integration into the North American production-sharing system and competitiveness in Canada's consumer markets.

## Exports to Canada

Arizona's exports to Canada were valued at \$2.1 billion in 2018, a 0.3% decline from 2017, and accounted for 9.6% of the state's exports worldwide. Among the southern border states, Texas exported the largest dollar value to Canada at \$27.4 billion (up 19.8%), followed by California with \$17.8 billion (up 5.4%). New Mexico exported \$0.12 billion (down 8.4%) (Table 4). U.S. exports to Canada grew 5.8%.

Arizona's percent share of southern border states' exports to Canada decreased from 5.1% in 2017 to 4.5% in 2018. Arizona's share was 5.8% in 2008 (Figure 16).

Arizona's exports to Canada declined 7.4% between 2008 to 2018. Texas exports grew 41.6% over the decade. California's and New Mexico lost ground in this sector declining 0.6% and 66.1%, respectively (Figure 17). U.S. exports to Canada grew 14.4% over the decade.





# EXPORTS TO CANADA

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## Manufacturing Exports to Canada

In 2018, Arizona's manufacturing exports were valued at \$1.7 billion, a 2.2% decline from 2017. Texas led the southern border states in this sector with \$20.2 billion (up 11.2%), followed by California with \$15.0 billion (up 6.5%). Arizona experienced steady growth in this high-value sector between 2009 and 2015. However, 2018 marks the second year of contraction since the end of the Great Recession (Table 5).

Arizona's percent share of manufacturing exports to Canada among southern border states decreased from 5.1% in 2017 to 4.6% in 2018. It was 5.6% in 2008 (Figure 18).

Arizona's manufacturing exports to Canada declined 14.1% over the decade (2008-2018). California and New Mexico were also down (1.7% and 56.4%, respectively), while Texas gained 15.8% during this time (Figure 19). The U.S. overall grew manufacturing exports to Canada 13.3% between 2008 and 2018.

## How does Arizona compare?

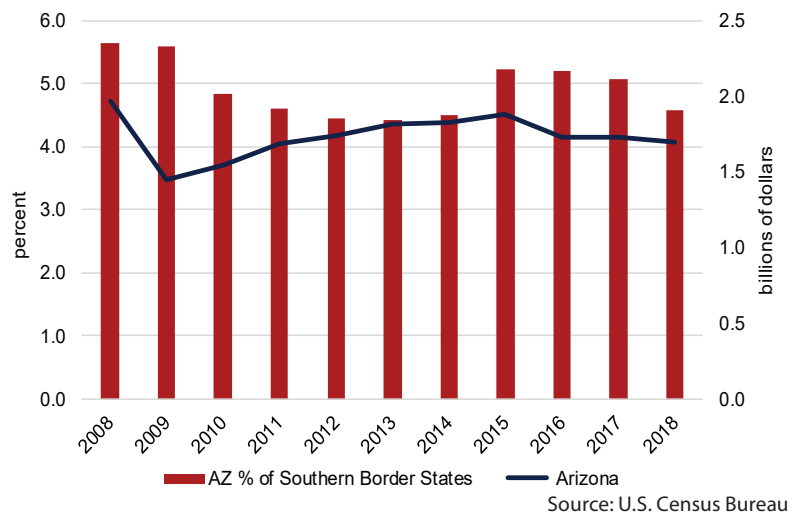
- ▶ 2008-2018: Arizona exports to Canada declined 7.4%. Among border states, only TX gained in this decade (41.6%). The U.S. gained 14.4% overall.
- ▶ In 2018, Arizona exports to Canada declined 0.3% (mfg. exports fell 2.2%). CA and TX gained 5.4% and 19.8%, respectively. The U.S. gained 5.8%.

Table 5: Manufacturing Exports to Canada (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	1.97	6.8	15.26	9.7	0.23	20.8	17.45	11.6
2009	1.45	-26.3	11.84	-22.4	0.16	-31.4	12.53	-28.2
2010	1.55	6.4	13.37	12.9	0.23	45.0	16.91	34.9
2011	1.68	8.7	14.38	7.5	0.34	45.2	20.12	19.0
2012	1.74	3.2	14.70	2.2	0.32	-6.0	22.19	10.3
2013	1.81	4.6	15.99	8.8	0.27	-13.8	23.01	3.7
2014	1.83	0.9	15.45	-3.4	0.22	-20.1	23.09	0.3
2015	1.88	2.7	14.41	-6.8	0.17	-20.0	19.46	-15.7
2016	1.73	-8.3	13.55	-5.9	0.13	-26.7	17.71	-9.0
2017	1.73	0.4	14.08	3.9	0.11	-13.0	18.17	2.6
2018	1.69	-2.2	15.00	6.5	0.10	-8.6	20.21	11.2

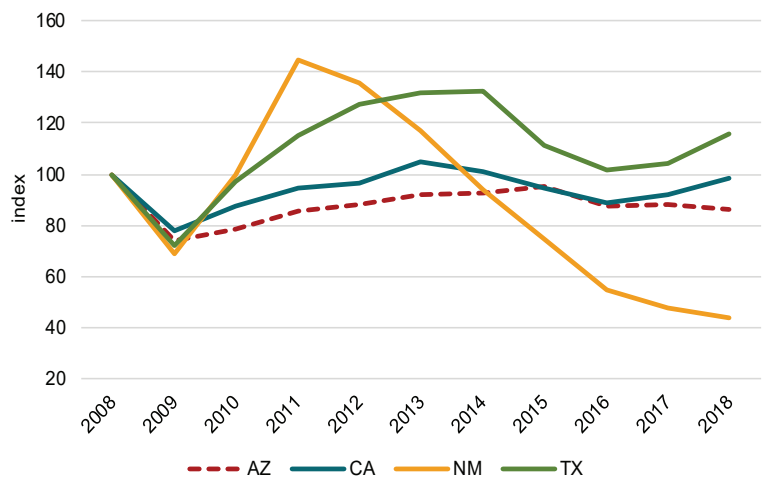
Source: U.S. Census Bureau

Figure 18: Arizona Manufacturing Exports to Canada



Source: U.S. Census Bureau

Figure 19: U.S. Border States Mfg. Exports to Canada (2008=100)



Source: U.S. Census Bureau

# BORDER CROSSINGS



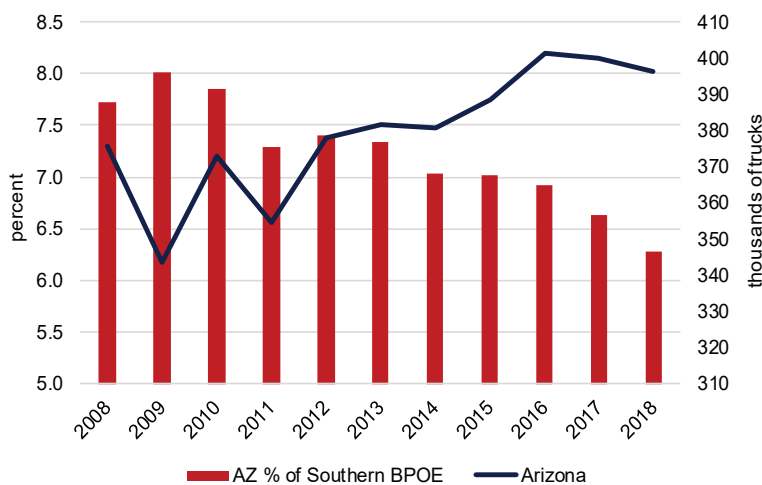
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**Table 6:** Northbound Truck Crossings Arizona BPOE

YEAR	Douglas	Lukeville	Naco	Nogales	San Luis	Sasabe
2008	25,062	432	2,446	303,757	43,791	362
2009	25,162	297	1,661	276,877	39,644	120
2010	25,504	90	2,512	307,510	37,103	NA
2011	29,883	33	3,376	287,091	34,190	NA
2012	31,636	22	3,728	307,626	34,891	NA
2013	32,497	53	3,947	311,669	33,402	NA
2014	33,104	68	3,601	312,010	31,968	NA
2015	32,104	106	2,988	319,747	33,712	NA
2016	30,815	154	3,287	335,737	31,338	NA
2017	30,649	206	3,424	333,941	31,940	NA
2018	27,804	298	2,997	337,179	28,211	NA

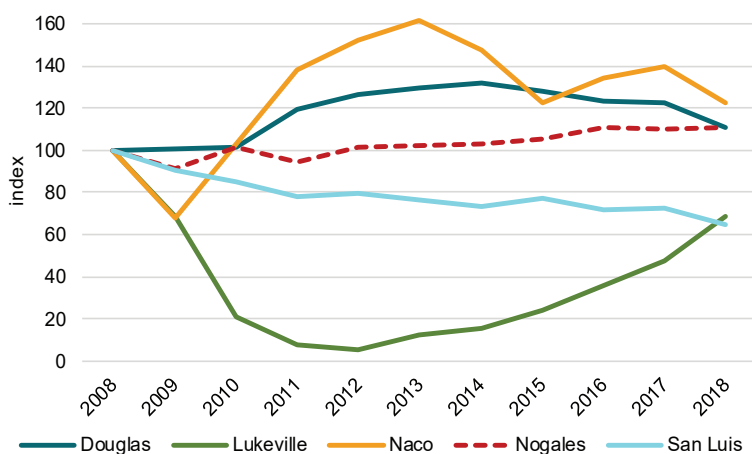
Source: Bureau of Transportation Statistics and EBRC

**Figure 20:** Northbound Truck Crossings Arizona



Source: Bureau of Transportation Statistics and EBRC

**Figure 21:** Northbound Truck Crossings Arizona BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Arizona's border ports of entry (BPOE) play a pivotal role in facilitating commercial exchanges between the U.S., Canada, and Mexico. The dynamics of personal vehicle, pedestrian and bus crossings reflect the regional significance of border ports of entry for personal transportation, tourism and trade. Commercial travel and freight in the form of train and truck crossings contextualize border ports of entry as of national and North American significance.

## Truck Crossings

Truck traffic at Arizona's six BPOE declined 0.9% from a year ago, facilitating 396,489 crossings in 2018. Nogales, Arizona's busiest port, facilitated 337,149 crossings (up 1.0%). San Luis came in second with 28,211 (down 11.7%), and Douglas third with 27,804 (down 9.3%) (Table 6).

Trucks carry the largest value and volume of merchandise across the border, and are the primary means of transportation for Mexican fresh produce. In 2018, Arizona's share of northbound truck crossings declined from 6.9% in 2017 to 6.3% in 2018. The most recent peak was 8.0% in 2009 (Figure 20).

Truck traffic at the Nogales BPOE increased 11.0% between 2008 and 2018, while crossings at all Arizona BPOE combined increased 5.5%. Nogales, Douglas, and Naco BPOE experienced sufficient growth in crossings to put them above 2008 levels. Truck crossings at Lukeville and San



# BORDER CROSSINGS

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Luis BPOE are still well below levels of a decade ago (Figure 21).

Other major southern BPOE experienced steady annual growth in 2018. Laredo facilitated the largest volume of truck crossings with 2,313,967 (up 6.0%), followed by El Paso with 810,935 (up 4.0%), Hidalgo with 647,157 (up 4.3%), and Calexico East with 376,079 (up 4.2%) (Table 7).

Between 2008 and 2018, Laredo gained 48.8%, followed by Hidalgo at 36.0%, Calexico East at 15.4%, Nogales at 11.0%, and El Paso at 6.9% growth (Figure 22). The port at Santa Teresa, NM, facilitates far fewer trucks (114,988), but has grown 150.8% between 2008 and 2018 (not shown in the figures).

Seasonal variability associated with fresh produce imports via Nogales is reflected in higher truck crossing volumes during winter months (Dec.–May) (Figure 23). However, the annual volume of Nogales truck crossings remains steady.

## How does Arizona compare?

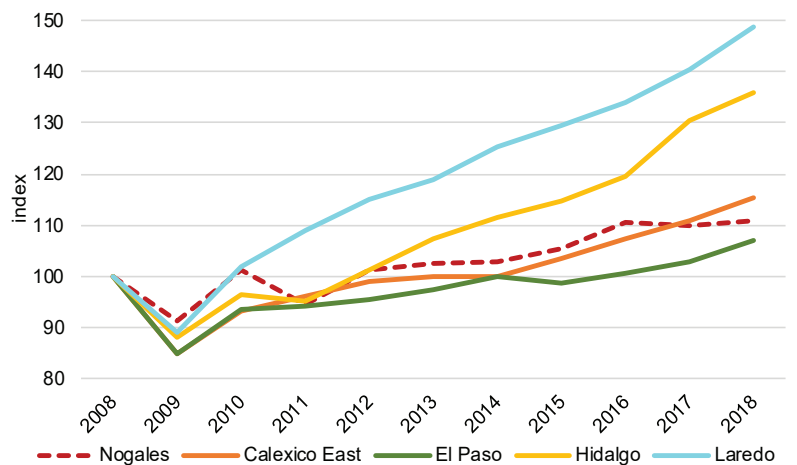
- ▶ 2008-2018: Truck crossings at Nogales grew 11.0%, and at Arizona BPOE combined 5.5%. Arizona's share declined from 7.7% to 6.3% over the decade.
- ▶ In 2018, truck traffic at Arizona BPOE leveled off declining 0.9% from a year ago, while other major southern BPOE experienced growth.

Table 7: Northbound Truck Crossings Major BPOE

YEAR	Nogales	Calexico East	El Paso	Hidalgo	Laredo
2008	303,757	325,975	758,856	476,000	1,555,197
2009	276,877	276,894	644,272	419,426	1,382,319
2010	307,510	303,552	710,363	459,331	1,585,682
2011	287,091	312,973	714,699	453,235	1,695,916
2012	307,626	322,424	724,964	481,620	1,789,546
2013	311,669	325,690	738,914	510,706	1,846,282
2014	312,010	325,243	759,125	530,093	1,947,846
2015	319,747	337,474	747,702	546,259	2,015,773
2016	335,737	349,727	763,868	568,235	2,083,964
2017	333,941	360,833	779,410	620,236	2,182,984
2018	337,179	376,079	810,935	647,157	2,313,967

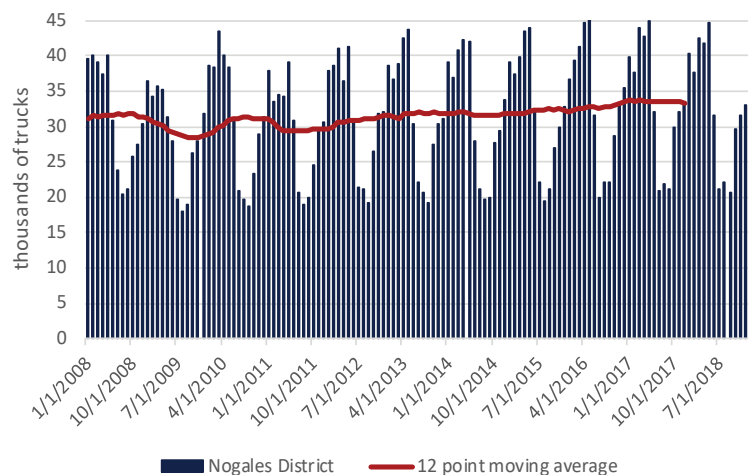
Source: Bureau of Transportation Statistics and EBRC

Figure 22: Northbound Truck Crossings Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Figure 23: Monthly Northbound Truck Crossings Nogales District (All AZ BPOE)



Source: Bureau of Transportation Statistics and EBRC

# BORDER CROSSINGS

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**Table 8:** Northbound Train Crossings Major BPOE

YEAR	No-gales	Calexico East	Eagle Pass	El Paso	Laredo
2008	640	417	1,654	2,473	3,921
2009	563	253	1,704	1,502	2,716
2010	602	243	2,012	1,046	3,036
2011	709	252	2,151	1,152	3,413
2012	657	252	2,349	1,392	3,492
2013	866	250	2,459	1,357	3,629
2014	795	252	2,728	1,434	3,758
2015	801	245	2,814	1,528	3,634
2016	742	250	3,062	1,652	3,739
2017	649	245	3,333	1,498	4,252
2018	737	246	3,452	1,379	4,251

**N**ogales is the oldest rail crossing along the U.S.–Mexico border. Historically, the railroad primarily served mining and agriculture. At present, the most important commodities are associated with auto manufacturing at the Ford Company in Hermosillo, Sonora.



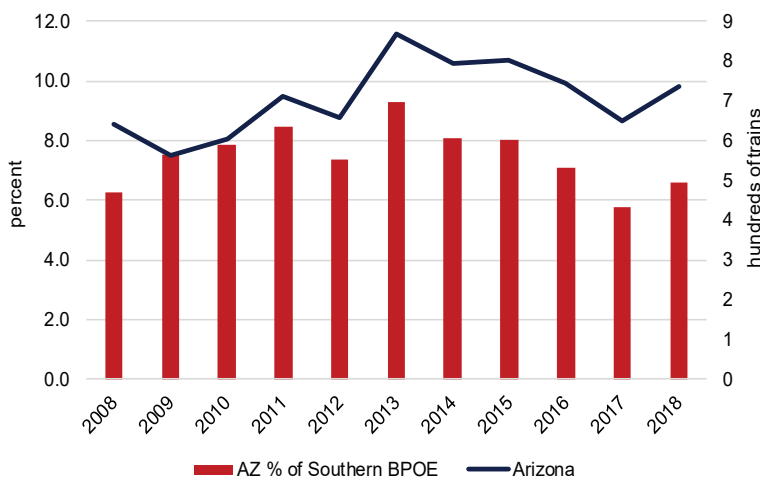
## Train Crossings

Train crossings are vital to the auto industry in Sonora, as well as to the transport of commodities such as cement and garbanzo beans. Nogales (the only train crossing in Arizona) facilitated 737 train crossings in 2018, a 13.6% increase from 2017. Of the southern BPOE, Laredo, TX, facilitated the largest number of train crossings, 4,251 (flat in 2018), followed by Eagle Pass with 3,452 (up 3.6%), and El Paso with 1,379 (down 7.9%) (Table 8).

Nogales' share of total crossings at all southern BPOE increased from 5.8% in 2017 to 6.6% in 2018. It was 6.2% in 2008 (this share is calculated with a denominator including all train crossings at the seven BPOE with active rail along the southern border) (Figure 24).

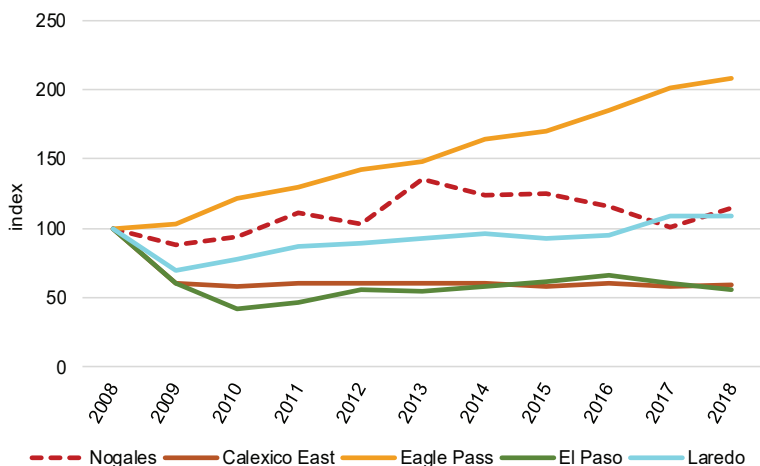
In 2018, train volume via the Nogales port was up 15.2% from a decade ago, while Laredo gained 8.4%. Traffic via Eagle Pass steadily gained ground increasing 108.7% over the decade. Calexico East and El Paso remained well below 2008 levels (Figure 25).

**Figure 24:** Northbound Train Crossings Arizona



Source: Bureau of Transportation Statistics and EBRC

**Figure 25:** Northbound Train Crossings Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC



# BORDER CROSSINGS

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## Bus Crossings

The Nogales BPOE facilitated 9,569 bus crossings in 2018, a 5.9% decrease from 2017, and accounted for 74.8% of all bus crossings at Arizona BPOE. Among major southern BPOE, Laredo facilitated the largest volume of bus crossings with 38,996 in 2018 (down 3.0%), followed by Hidalgo with 20,026 crossings (down 3.9%), and El Paso with 15,977 (up 0.5%) (Table 9).

Arizona BPOE facilitated 12,793 bus crossings in 2018, down 4.8% from last year. Arizona's percent share of all bus crossings at southern border ports has increased steadily since 2012. In 2018, its share was 7.8%, the same as in 2017, and 5.9% in 2008 (Figure 26).

The only major southern BPOE to gain ground over the decade was Calexico East which increased 55.9% (Figure 27).

## How does Arizona compare?

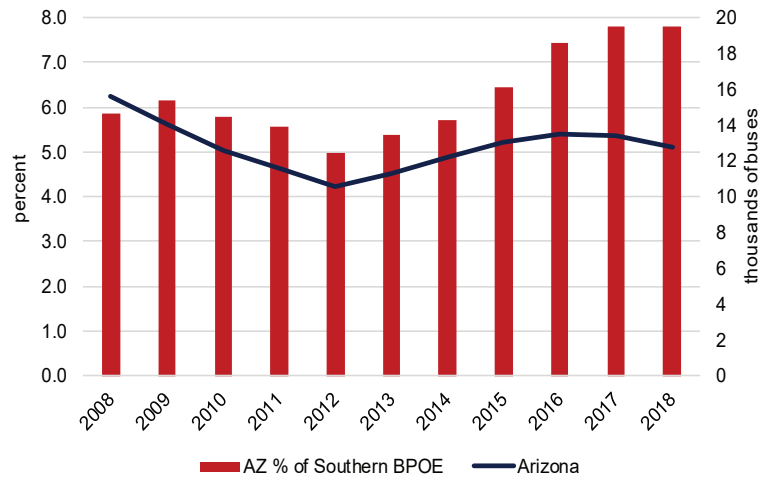
- ▶ 2008-2018: Train traffic via Nogales increased 15.2%, while bus traffic decreased 17.4%.
- ▶ In 2018, 737 trains crossed at Nogales, a 13.6% increase from 2017, while bus crossings (9,569) went down 5.9%.
- ▶ 2008-2018: While train crossing volume at Nogales and Laredo both gained modestly over the decade, traffic at Eagle Pass, TX, took off gaining 108.7%, surpassing El Paso. It is now second only to Laredo.

Table 9: Northbound Bus Crossings Major BPOE

YEAR	Nogales	Calexico East	El Paso	Hidalgo	Laredo
2008	11,585	1,669	24,716	33,127	39,122
2009	11,096	2,451	19,474	28,407	43,342
2010	9,872	1,897	22,852	20,031	44,121
2011	9,144	3,193	23,421	20,992	42,980
2012	8,068	2,564	22,798	20,476	38,368
2013	8,699	2,571	21,595	22,521	38,017
2014	9,423	2,785	21,554	26,087	41,230
2015	9,694	3,064	19,739	25,776	40,065
2016	10,077	2,906	15,050	25,045	41,856
2017	10,171	2,881	15,898	20,840	40,220
2018	9,569	2,602	15,977	20,026	38,996

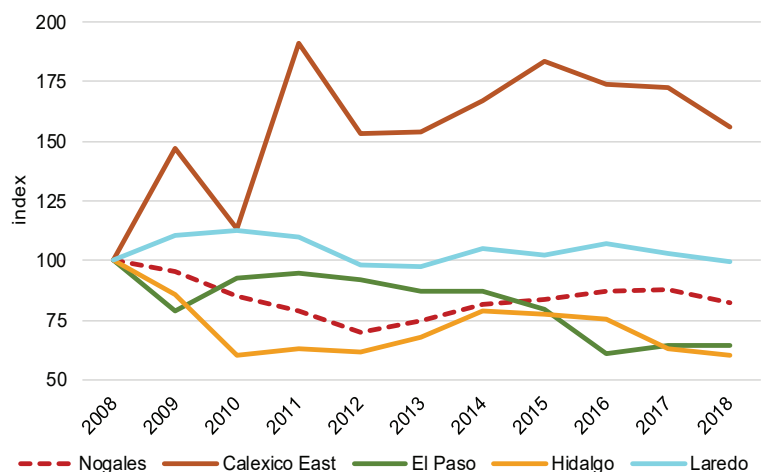
Source: Bureau of Transportation Statistics and EBRC

Figure 26: Northbound Bus Crossings Arizona



Source: Bureau of Transportation Statistics and EBRC

Figure 27: Northbound Bus Crossings Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

# BORDER CROSSINGS



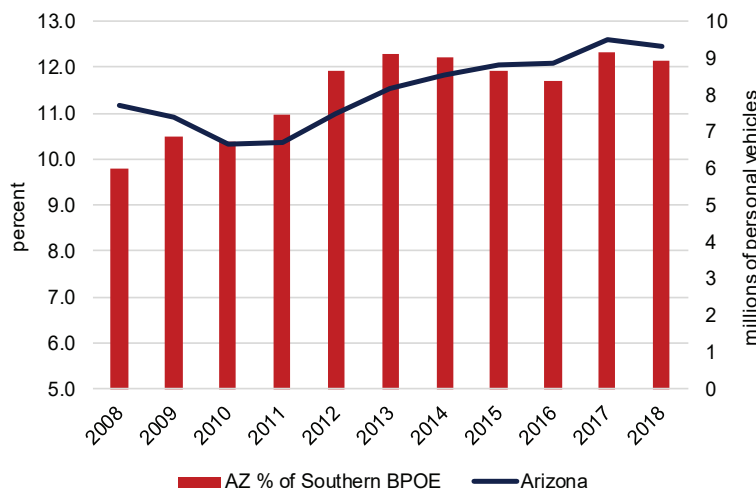
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**Table 10:** Northbound Personal Vehicle Crossings Arizona BPOE (000s)

YEAR	Douglas	Lukeville	Naco	Nogales	San Luis	Sasabe
2008	1,691	410	264	3,027	2,314	30
2009	1,514	323	279	2,990	2,253	28
2010	1,432	300	263	2,601	2,033	21
2011	1,393	256	236	2,641	2,171	15
2012	1,405	270	270	2,823	2,690	14
2013	1,471	290	285	3,162	2,949	16
2014	1,572	316	298	3,287	3,028	18
2015	1,591	344	297	3,470	3,107	20
2016	1,615	366	302	3,477	3,062	22
2017	1,766	383	295	3,806	3,213	24
2018	1,727	411	310	3,604	3,258	25

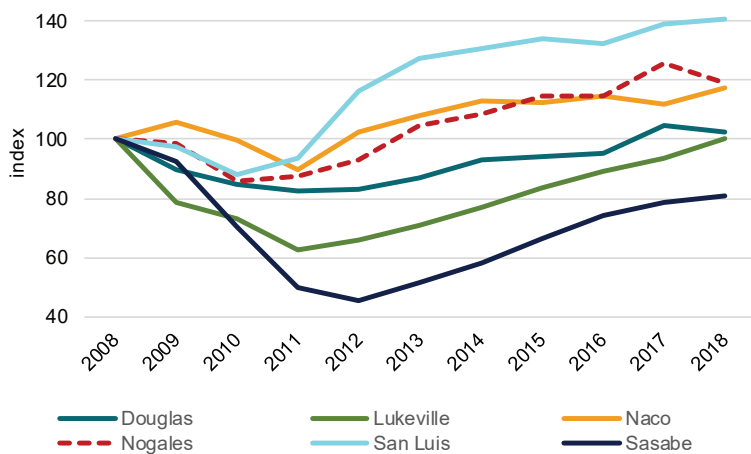
Source: Bureau of Transportation Statistics and EBRC

**Figure 28:** Northbound Personal Vehicle Crossings Arizona



Source: Bureau of Transportation Statistics and EBRC

**Figure 29:** Northbound Personal Vehicle Crossings Arizona BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Personal vehicles are the primary mode of transportation for people crossing the border. These data measure crossings by local residents for business, shopping, tourism, and visiting family and friends. Data are available only for northbound crossings, and include all personal vehicles regardless of nationality, including U.S. and Canadian visitors crossing back.



## Personal Vehicle Crossings

Personal vehicle crossings at Nogales were down 5.3% over the year with 3.6 million crossings in 2018. With the exception of Nogales and Douglas, other Arizona BPOE saw significant traffic increases in 2018. Lukeville and Naco were up 7.3% and 5.0%, respectively, while San Luis gained 1.4% with 3.3 million personal vehicle crossings (Table 10).

Arizona BPOE combined facilitated 9.3 million personal vehicle crossings in 2018, down 1.6% from a year ago, but up 20.7% over the decade. Arizona's percent share of vehicle crossings at all southern border ports decreased slightly from 12.3% in 2017 to 12.1% in 2018 (Figure 28).

San Luis and Nogales gained 40.8% and 19.1% over the decade 2008-2018, respectively. Douglas and Lukeville caught up to their levels of a decade ago, while Sasabe remained well below 2008 levels (Figure 29).



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Among the major southern BPOE, El Paso led with 12.4 million crossings, but declined 1.8% in 2018 and 9.7% over the decade. Laredo had 5.2 million crossings in 2018, up 3.4% over the year but down 15.5% over the decade.

Calexico East had 3.6 million crossings in 2018, declining 7.4% over the year, but growing 0.3% over the decade. With 3.6 million crossings in 2018, Nogales caught up with Calexico East, and grew faster over the decade at 19.1% (Table 11). All other major ports remained well below their 2008 levels (Figure 30).

Crossings at Arizona BPOE exhibit marked seasonality, tending to be lower in February and higher in May and December (Figure 31).

## How does Arizona compare?

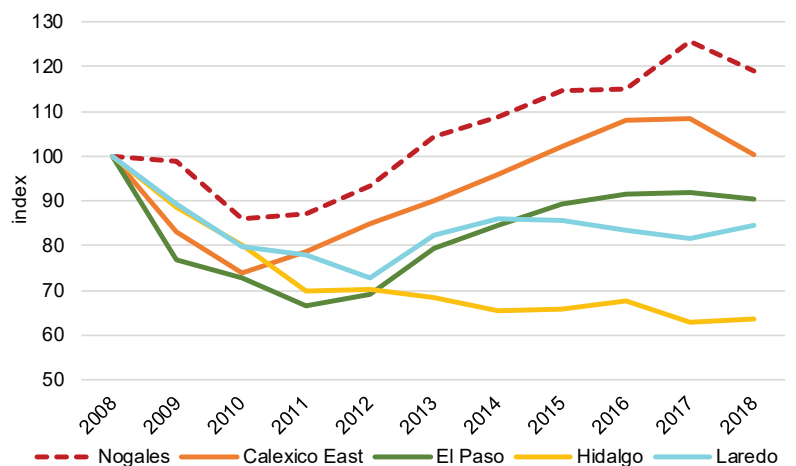
- ▶ 2008-2018: Personal vehicle traffic at San Luis BPOE grew 40.8% followed by Nogales at 19.1%. Other major BPOE experienced declines, except Calexico East, up 0.3%.
- ▶ In 2018, traffic volume at Nogales declined 5.3%. Calexico East lost 7.4% and El Paso lost 1.8%. Laredo was up 3.4% over the year.

Table 11: Northbound Personal Vehicle Crossings Major BPOE (000s)

YEAR	Nogales	Calexico East	El Paso	Hidalgo	Laredo
2008	3,027	3,549	13,716	6,983	6,105
2009	2,991	2,954	10,529	6,178	5,452
2010	2,601	2,627	9,968	5,604	4,864
2011	2,641	2,785	9,148	4,878	4,746
2012	2,823	3,017	9,462	4,894	4,440
2013	3,162	3,199	10,877	4,768	5,023
2014	3,287	3,400	11,595	4,565	5,251
2015	3,470	3,622	12,258	4,594	5,224
2016	3,477	3,829	12,526	4,721	5,092
2017	3,806	3,843	12,615	4,401	4,991
2018	3,604	3,560	12,383	4,427	5,158

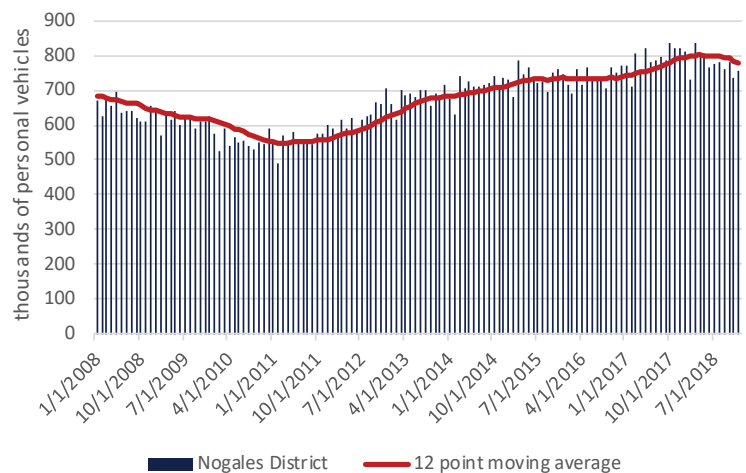
Source: Bureau of Transportation Statistics and EBRC

Figure 30: Northbound Vehicle Crossings Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Figure 31: Monthly Northbound Personal Vehicle Crossings Nogales District (All AZ BPOE)



Source: Bureau of Transportation Statistics and EBRC

# BORDER CROSSINGS



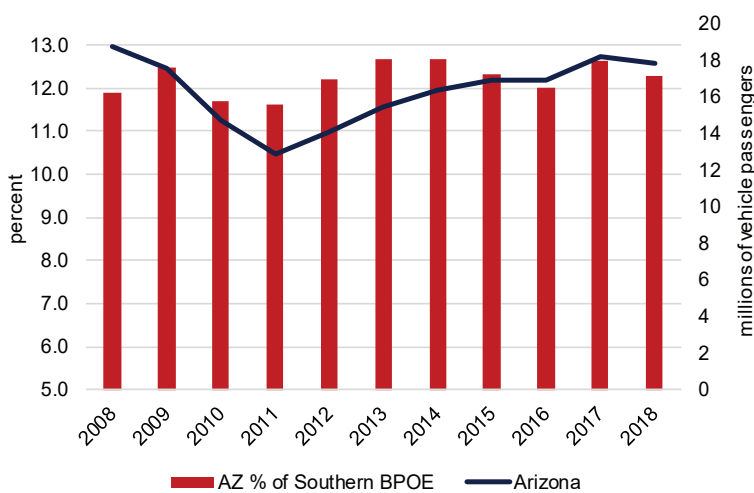
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**Table 12:** Northbound Personal Vehicle Passengers Arizona BPOE (000s)

YEAR	Douglas	Lukeville	Naco	Nogales	San Luis	Sasabe
2008	3,907	1,188	705	8,472	4,417	79
2009	3,893	1,088	661	7,636	4,234	67
2010	2,893	695	512	6,729	3,860	37
2011	2,615	539	465	5,289	3,941	30
2012	2,610	581	493	5,730	4,575	26
2013	2,704	625	509	6,510	5,089	26
2014	2,822	653	526	6,798	5,537	31
2015	2,851	751	515	7,190	5,575	36
2016	2,908	887	510	7,061	5,463	41
2017	3,192	1,000	526	7,630	5,753	45
2018	3,099	1,061	566	7,154	5,855	47

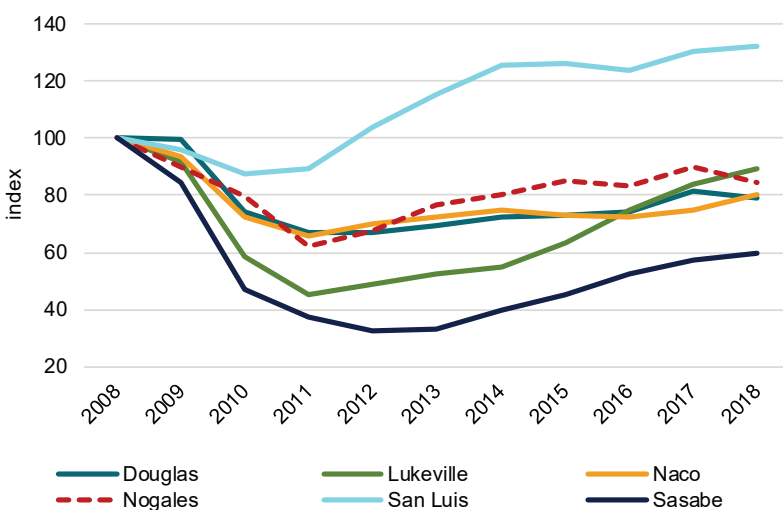
Source: Bureau of Transportation Statistics and EBRC

**Figure 32:** Northbound Personal Vehicle Passengers Arizona



Source: Bureau of Transportation Statistics and EBRC

**Figure 33:** Northbound Vehicle Passengers Arizona BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

**P**ersonal vehicle passenger crossings through Arizona-Sonora border ports of entry (BPOE) reflect the composite effects of both the economic ties between Arizona and Sonora, as well as border crossing procedures that affect wait times.



## Personal Vehicle Passengers

Personal vehicle passengers crossing at Arizona's southern BPOE declined in 2018, losing 2.0% with 17.8 million persons crossing. Nogales facilitated 7.2 million crossings (down 6.2%), San Luis 5.9 million (up 1.8%), Douglas 3.1 million (down 2.9%) and Lukeville 1.1 million (up 6.1%) (Table 12).

Arizona's share of personal vehicle passenger crossings at all southern BPOE declined from 12.6% in 2017 to 12.3% in 2018 (Figure 32).

San Luis gained 32.5% in passenger crossings over the decade while all other Arizona BPOE lost ground. Nogales declined 15.6%, Douglas 20.7%, and Lukeville 10.7% (Figure 33).

Among major southern BPOE, El Paso facilitates by far the largest volume of personal vehicle passenger crossings with 22.2 million in 2018. Laredo followed with 10.6 million, Hidalgo with 9.1 million, Nogales with 7.2 million, and Calexico East with 6.5 million (Table 13).





# BORDER CROSSINGS

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In 2018, El Paso was the only major southern BPOE to surpass 2008 levels growing 1.9% over the decade. All other major southern ports were still significantly below 2008 levels. All ports have generally been on the upswing since 2011; however, several dipped in 2018. Nogales was at 84.4% of its 2008 level, Calexico East 91.1%, Laredo 68.8% , and Hidalgo 67.8% (Table 15 and Figure 34).

Since the early 2000s, periods of economic slowdown, together with increased wait times at border crossings have reduced the number of personal vehicle crossings and the number of passengers, although not at the same rate. It is interesting to note that personal vehicle crossings have recovered faster than total personal vehicle passengers (Figure 35).

## How does Arizona compare?

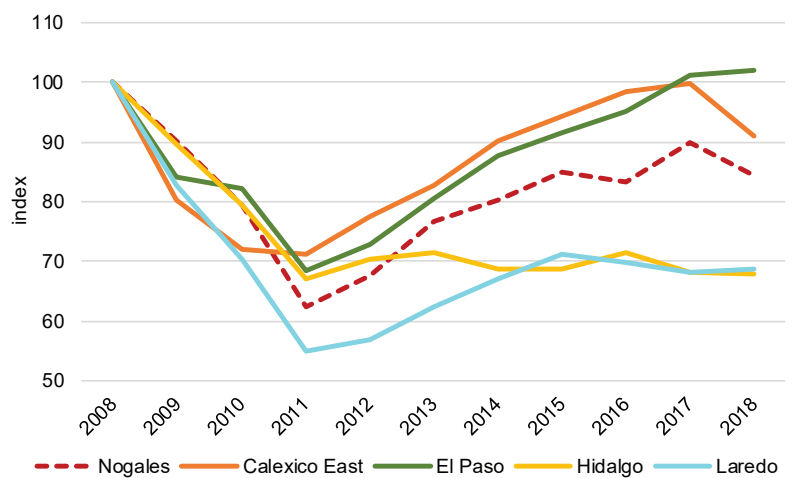
- ▶ 2008-2018: El Paso was the only major southern BPOE to surpass its level of a decade ago. Nogales was at 84.4%, just behind Calexico East at 91.1%. Among Arizona BPOE, San Luis was the stand out growing 32.5% over the decade.
- ▶ Despite facilitating almost 18 million personal vehicle passenger crossings, traffic slowed in 2018 at Arizona BPOE combined decreasing 2.0%. Traffic at Nogales declined 6.2% and 2.9% at Douglas.

Table 13: Northbound Vehicle Passengers Major BPOE (000s)

YEAR	Nogales	Calexico East	El Paso	Hidalgo	Laredo
2008	8,472	7,144	21,806	13,468	15,398
2009	7,636	5,731	18,377	12,074	12,729
2010	6,729	5,152	17,920	10,692	10,858
2011	5,289	5,082	14,941	9,040	8,458
2012	5,730	5,530	15,908	9,484	8,768
2013	6,510	5,916	17,545	9,609	9,588
2014	6,798	6,438	19,135	9,252	10,335
2015	7,190	6,744	19,982	9,272	10,985
2016	7,061	7,042	20,768	9,635	10,746
2017	7,630	7,143	22,047	9,177	10,489
2018	7,154	6,506	22,226	9,126	10,598

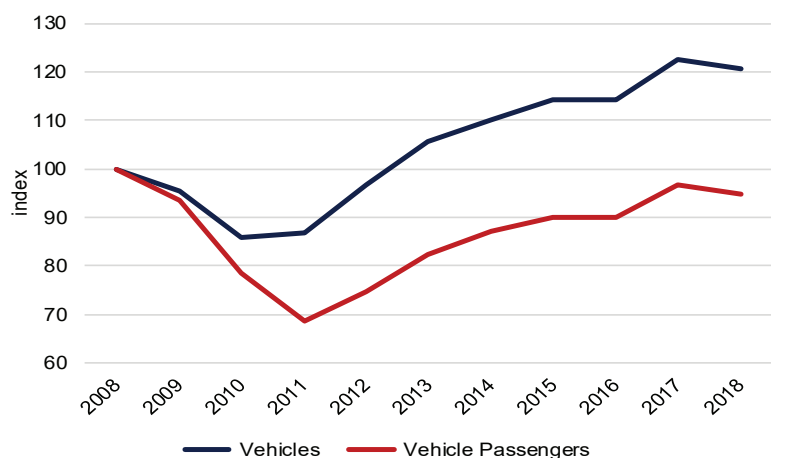
Source: Bureau of Transportation Statistics and EBRC

Figure 34: Northbound Vehicle Passengers Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Figure 35: Number of Vehicles & Vehicle Passengers through Nogales District (2008=100)



Source: Bureau of Transportation Statistics and EBRC

# BORDER CROSSINGS



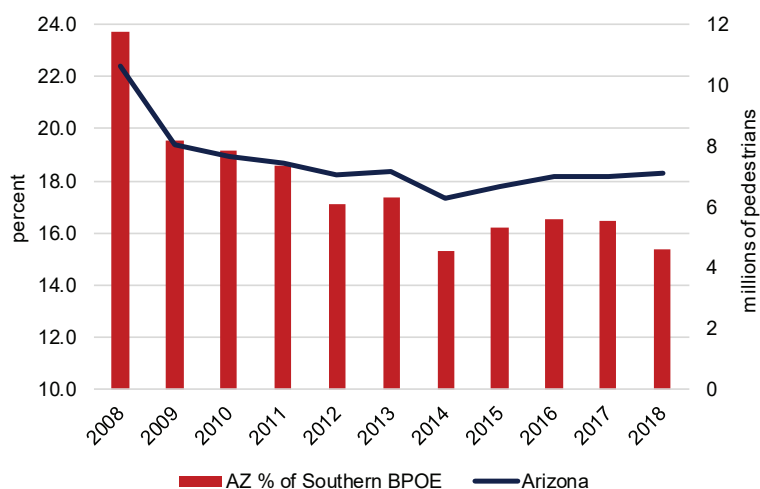
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**Table 14:** Northbound Pedestrian Crossings Arizona BPOE

YEAR	Douglas	Lukeville	Naco	Nogales	San Luis	Sasabe
2008	1,287,836	122,264	89,175	6,568,207	2,564,499	1,314
2009	1,314,745	93,815	81,815	4,038,356	2,537,177	1,013
2010	1,096,084	60,950	78,748	3,971,040	2,440,158	1,127
2011	1,030,357	41,608	79,115	3,525,540	2,762,696	1,016
2012	1,198,838	39,513	72,896	3,238,929	2,497,321	977
2013	1,804,110	40,699	81,146	2,912,077	2,315,369	730
2014	1,011,564	44,716	79,325	2,886,022	2,287,955	1,369
2015	1,069,031	48,627	75,267	3,131,978	2,351,506	767
2016	851,997	45,995	76,834	3,420,708	2,583,851	983
2017	854,502	43,051	113,384	3,349,123	2,645,119	549
2018	847,568	46,499	152,162	3,422,816	2,640,907	524

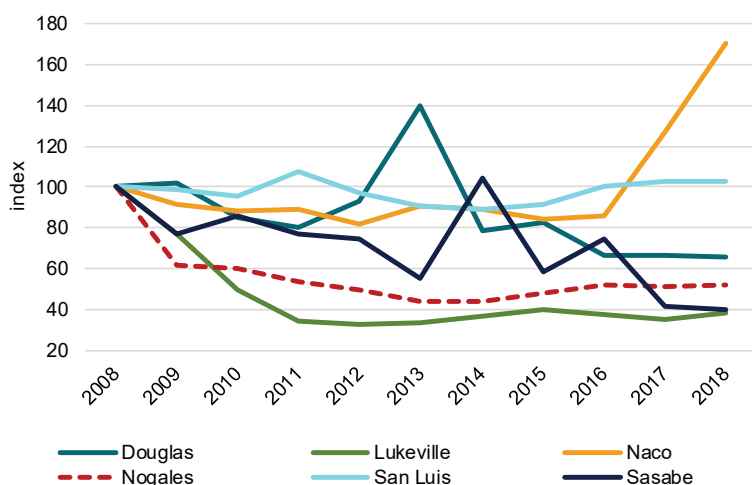
Source: Bureau of Transportation Statistics and EBRC

**Figure 36:** Northbound Pedestrians Crossings Arizona



Source: Bureau of Transportation Statistics and EBRC

**Figure 37:** Northbound Pedestrian Crossings Arizona BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

The dynamics of pedestrian crossings through the Arizona-Sonora border ports of entry (BPOE) reflect the composite effects of both the economic and familial ties between Arizona and Sonora, as well as border crossing procedures that affect wait times.



## Pedestrian Crossings

In 2018, there were 3.4 million pedestrian crossings at Nogales, Arizona's busiest port, a 2.2% increase from a year ago. San Luis came in second at 2.6 million crossings and Douglas third with 0.8 million; both these BPOE had flat growth in 2018. Naco and Lukeville gained 34.2% and 8.0%, respectively, but traffic fell off at Arizona's other smaller port with Sasabe down 4.6% (Table 14).

Arizona's percent share of pedestrian crossings at all southern BPOE fell to 15.4% in 2018, from 16.4% in 2017 (Figure 36).

Pedestrian crossings at Nogales declined 47.9% over the decade from 6.6 million in 2008 to 3.4 million in 2018. Naco and San Luis were the only Arizona BPOE to gain ground (Figure 37).

Among major southern BPOE, Nogales' 3.4 million pedestrian crossings were the second least, ahead of only Hidalgo (2.2 million).



# BORDER CROSSINGS

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El Paso continued to have the largest number of crossings at 7.2 million (Table 15).

Hidalgo was the only major BPOE not to lose pedestrian traffic over the decade. Laredo declined 4.5% and El Paso 10.1%. Calexico East, while still a small player by comparison, increased its traffic from 18,030 crossers in 2008 to 300,463 in 2018 (Figure 38).

Vehicle passenger crossings have grown faster at Arizona BPOE than the number of pedestrian crossings. This may reflect increased border crossing wait times for pedestrians, or reduced post-recession job opportunities in U.S. border communities. Pedestrian crossers typically cross more for work related purposes than persons crossing in vehicles (Figure 39).

## How does Arizona compare?

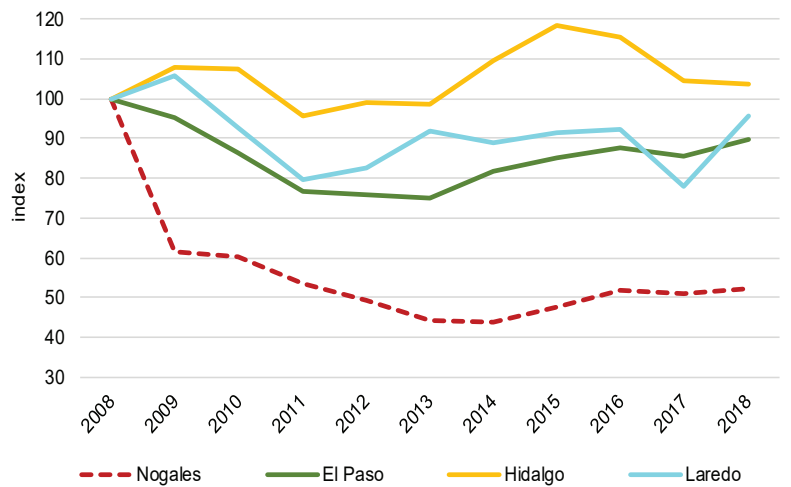
- ▶ 2008-2018: Gaining 3.9%, Hidalgo was the only major port not to lose ground over the decade. Pedestrian traffic at Nogales declined 47.9%, El Paso 10.1%, and Laredo 4.5%.
- ▶ 2008-2018: Among Arizona BPOE, San Luis was up 3.0%, while Douglas and Lukeville were down 34.2% and 62.0%, respectively.
- ▶ In 2018, Nogales BPOE facilitated 3.4 million pedestrians (up 2.2% from 2017), San Luis followed with 2.6 million (down 0.2%), and Douglas with 0.8 million (down 0.8%).

Table 15: Northbound Pedestrian Crossings at Major BPOE

YEAR	Nogales	Calexico East	El Paso	Hidalgo	Laredo
2008	6,568,207	18,030	8,029,106	2,089,603	3,873,872
2009	4,038,356	33,930	7,637,649	2,257,385	4,090,191
2010	3,971,040	58,771	6,930,357	2,245,341	3,587,763
2011	3,525,540	117,624	6,172,346	1,998,203	3,089,561
2012	3,238,929	318,599	6,090,841	2,073,485	3,206,372
2013	2,912,077	321,586	6,015,421	2,061,995	3,558,660
2014	2,886,022	310,344	6,572,313	2,290,469	3,447,437
2015	3,131,978	223,374	6,847,689	2,474,962	3,542,190
2016	3,420,708	253,992	7,032,715	2,414,852	3,573,992
2017	3,349,123	260,454	6,883,755	2,185,335	3,016,801
2018	3,422,816	300,463	7,218,420	2,170,334	3,701,135

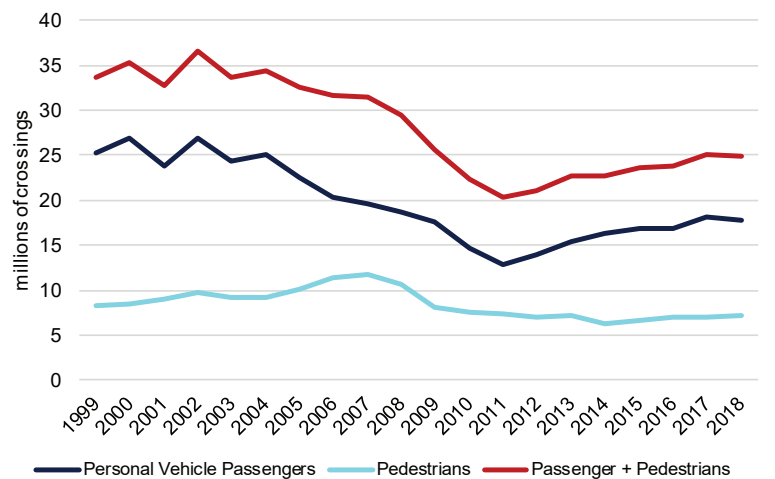
Source: Bureau of Transportation Statistics and EBRC

Figure 38: Northbound Pedestrian Crossings Major BPOE (2008=100)



Source: Bureau of Transportation Statistics and EBRC

Figure 39: Northbound Pedestrians + Vehicle Pass. Nogales District



Source: Bureau of Transportation Statistics and EBRC

# COMMODITY FLOWS



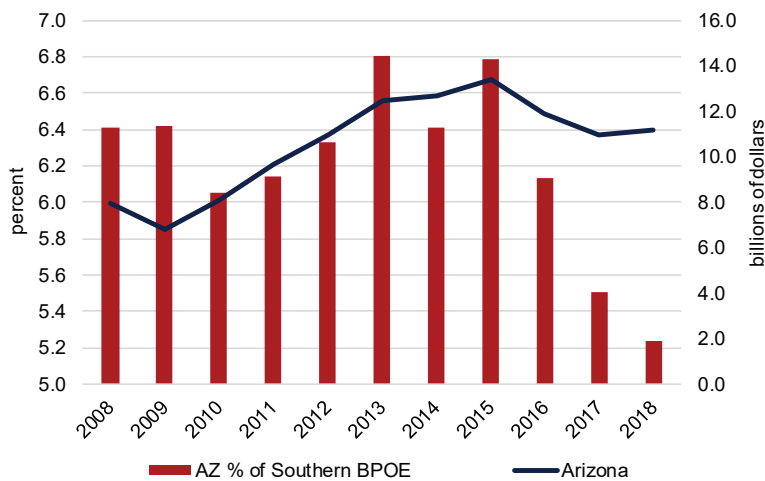
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**Table 16:** U.S. Exports via So. Border States (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	7.98	12.1	18.49	8.5	0.42	-15.3	108.71	11.2
2009	6.84	-14.3	15.61	-15.6	1.56	271.8	92.80	-14.6
2010	8.12	18.7	18.48	18.4	4.90	213.4	117.45	26.6
2011	9.68	19.3	20.91	13.2	7.51	53.2	140.37	19.5
2012	10.93	12.9	22.13	5.8	8.15	8.5	152.56	8.7
2013	12.47	14.1	22.57	2.0	8.70	6.7	159.68	4.7
2014	12.68	1.6	23.86	5.7	9.89	13.7	170.83	7.0
2015	13.42	5.9	24.87	4.2	10.32	4.3	165.22	-3.3
2016	11.88	-11.5	24.59	-1.2	10.80	4.7	161.37	-2.3
2017	10.95	-7.8	25.59	4.1	10.44	-3.3	171.72	6.4
2018	11.18	2.1	28.57	11.6	11.68	11.9	185.86	8.2

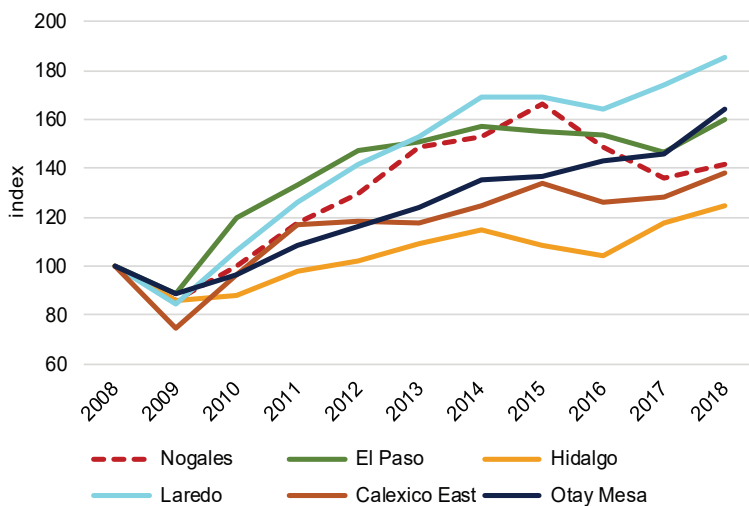
Source: U.S. Census Bureau

**Figure 40:** U.S. Exports via Arizona BPOE



Source: U.S. Census Bureau

**Figure 41:** U.S. Exports via So. BPOE (2008=100)



Source: U.S. Census Bureau

Arizona border ports of entry play a pivotal role in facilitating trade exchanges between the U.S. and Mexico. The dynamics of commodity flows reflect the composite effects of national and local border-specific economies, as well as the physical and human infrastructure capacities of BPOE.



## U.S. Exports to Mexico

Arizona BPOE facilitated \$11.2 billion in U.S. exports to Mexico in 2018, a 2.1% increase over the year. U.S. exports traveling south via California, New Mexico, and Texas ports also increased 11.6%, 11.9%, and 8.2%, respectively (Table 16). Overall, the value of U.S. exports traveling south via all southern BPOE increased 7.3% in 2018.

In 2018, 5.2% of all U.S. exports to Mexico through southern BPOE traveled via Arizona, down from 5.5% a year ago (Figure 40).

Despite the slowdown over the past three years, U.S. exports through Nogales BPOE in 2018 were 41.6% above 2008 levels. Laredo gained 85.1% over the decade, Otay Mesa 63.9%, El Paso 60.2%, and Hidalgo 24.9% (Figure 41). The Santa Teresa, NM, BPOE (not shown) grew 2,788.2% since 2008, substantially more than any other port.

## How does Arizona compare?

- ▶ In 2018, Arizona BPOE share of border states commodity flows fell to 5.2%, from 5.5% in 2017.
- ▶ 2008-2018: exports via Nogales BPOE increased 41.6%, with several other major southern ports growing faster.



**E**lectric and electronic manufacturing product exports traveling via Arizona's BPOE reflect the effects of manufacturing integration between Arizona and Mexico, as well as Canada, and other U.S. states that use Arizona's border ports for their exports to Mexico.

## U.S. Exports of Electric and Electronic Products

In 2018, \$3.2 billion in U.S. electric and electronic manufacturing products to Mexico passed through Arizona BPOE, up 1.8% from 2017. Despite some bumps along the way, the last decade has overall been a period of growth for this important sector which was up 62.8% from 2008 (Table 17).

Arizona BPOE share of this export category was 5.6% in 2018, down from 5.8% in 2017, and still below its 6.4% share from a decade ago (Figure 42).

The value of these exports via Nogales were 70.3% higher in 2018 than in 2008. Among the major ports, Calexico East grew 106.8%, Laredo 82.6%, El Paso 54.2%, and Otay Mesa 52.4%. Hidalgo was the only major port to lose ground, down 5.3% (Figure 43).

## How does Arizona compare?

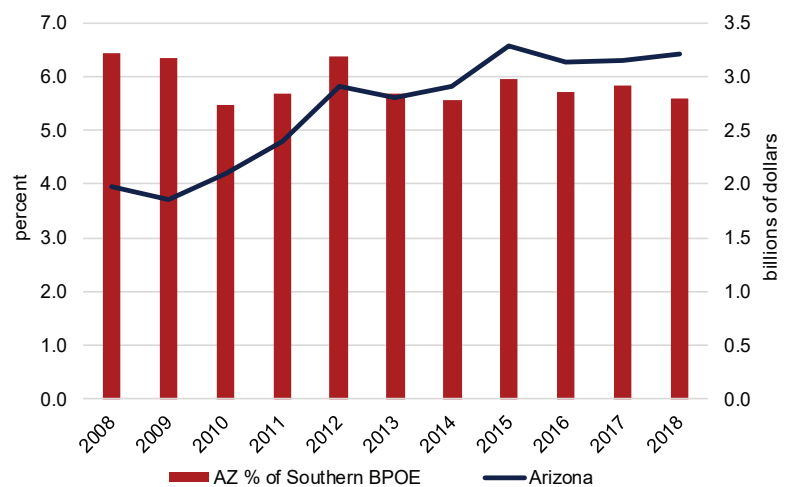
- ▶ In 2018, Arizona's share of border states was 5.6%, slightly down from its 5.8% share in 2017.
- ▶ 2008-2018: Exports through Nogales BPOE increased 70.3%, with only Laredo and Calexico East, growing faster.

Table 17: U.S. Exports Electric & Electronic Prod. via So. Border States (\$bil)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	1.97	-10.7	4.84	-1.3	0.08	7.3	25.02	6.2
2009	1.85	-6.0	4.32	-10.8	1.17	1340.1	22.99	-8.1
2010	2.09	12.9	5.24	21.3	3.88	231.5	28.38	23.4
2011	2.40	14.7	5.53	5.6	5.86	51.1	29.69	4.6
2012	2.91	21.4	5.90	6.7	5.94	1.4	32.19	8.4
2013	2.80	-3.7	6.32	7.2	6.26	5.4	35.01	8.7
2014	2.91	3.7	7.11	12.5	7.25	15.7	36.32	3.7
2015	3.29	13.2	7.91	11.3	8.11	11.9	37.47	3.2
2016	3.14	-4.7	7.62	-3.8	8.51	5.0	36.86	-1.6
2017	3.15	0.5	7.75	1.7	8.30	-2.4	36.53	-0.9
2018	3.21	1.8	8.41	8.5	9.45	13.8	38.01	4.0

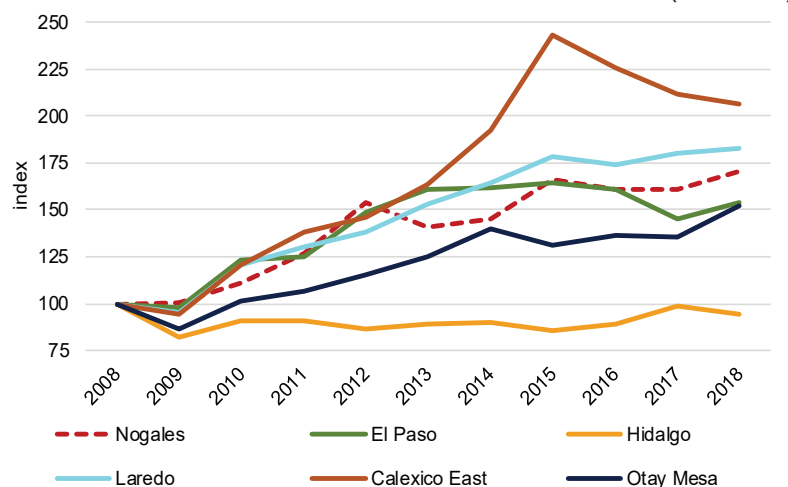
Source: U.S. Census Bureau

Figure 42: U.S. Exports of Electric & Electronic Products via Arizona BPOE



Source: U.S. Census Bureau

Figure 43: U.S. Exports of Electric & Electronic Products via So. BPOE (2008=100)



Source: U.S. Census Bureau

# COMMODITY FLOWS

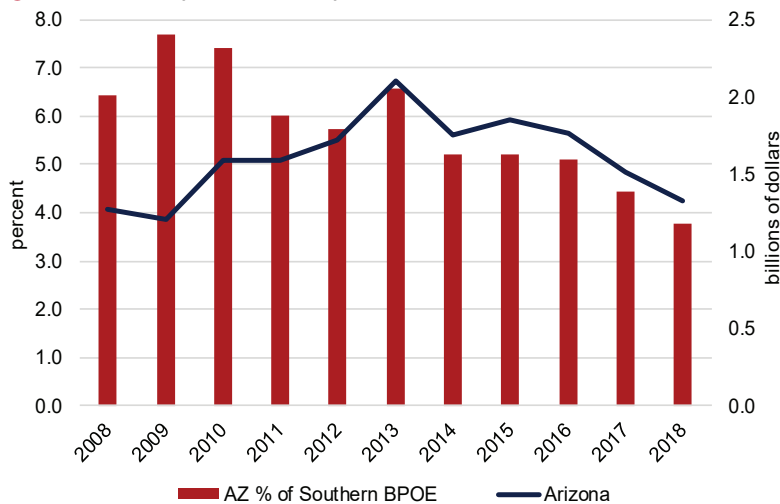
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**Table 18:** U.S. Exports of Transportation Prod. via So. Border States (\$bil)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	1.27	7.6	2.45	8.4	0.08	-40.9	16.15	6.6
2009	1.21	-4.6	1.98	-19.2	0.06	-27.1	12.88	-20.3
2010	1.59	31.5	2.33	17.6	0.09	44.9	17.85	38.6
2011	1.59	0.1	2.45	5.2	0.14	57.5	22.46	25.8
2012	1.72	8.2	2.73	11.3	0.20	49.7	25.74	14.6
2013	2.11	22.3	2.78	2.1	0.45	120.3	27.14	5.4
2014	1.75	-16.8	2.90	4.2	0.59	31.3	28.77	6.0
2015	1.85	5.8	3.44	18.8	0.24	-59.4	30.85	7.2
2016	1.76	-5.0	3.38	-1.8	0.16	-34.3	29.37	-4.8
2017	1.51	-14.4	3.60	6.5	0.07	-56.3	28.86	-1.7
2018	1.33	-11.9	4.48	24.4	0.09	25.5	29.41	1.9

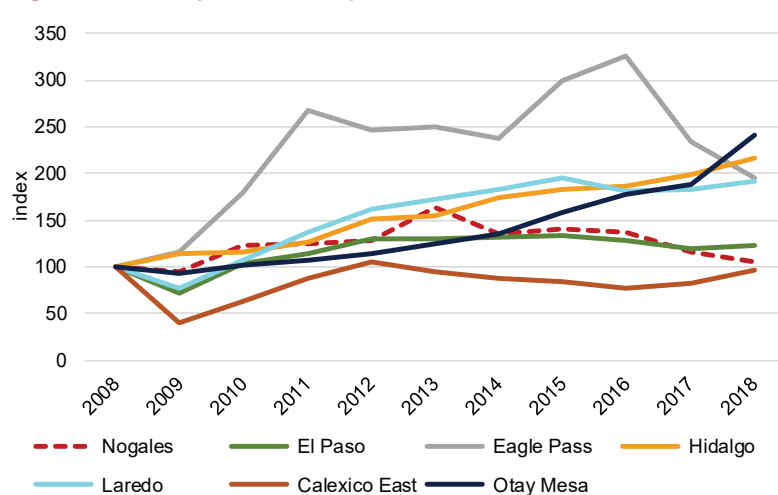
Source: U.S. Census Bureau

**Figure 44:** U.S. Exports of Transportation Products via Arizona BPOE



Source: U.S. Census Bureau

**Figure 45:** U.S. Exports of Transportation Prod. via So. BPOE (2008=100)



Source: U.S. Census Bureau

**M**exico's transportation equipment manufacturing sector has become one of the keystones of North American industrial integration. A recent expansion of the Ford Motor Company in Sonora has enhanced the role of Arizona's BPOE.

## U.S. Exports of Transportation Products

In 2018, \$1.3 billion worth of U.S. transportation equipment was exported to Mexico via Arizona BPOE. This was an 11.9% decrease over the year (Table 18).

Over the decade, the value of transportation exports traveling via Arizona BPOE grew 4.6%. However, Arizona's share declined from 6.4% in 2008 to 3.8% in 2018 (Figure 44).

Nogales BPOE gained 5.2% over the decade, failing to keep up with growth at Otay Mesa (141.7%), Hidalgo (115.9%), Laredo (91.7%), or El Paso (23.0%). Laredo facilitates the largest volume at \$22.1 billion (Figure 45).

In 2018, Otay Mesa grew fastest year-over-year at 28.7%, followed by Calexico East (16.7%), Hidalgo (9.0%), Laredo (5.2%), and El Paso (2.7%). Volume declined at Nogales (8.9%), and Eagle Pass (16.9%).

## How does Arizona compare?

- ▶ 2008-2018: Exports via Nogales grew 5.2%. Otay Mesa had the largest percent gain at 141.7%.
- ▶ In 2018, sector exports moving via Arizona BPOE declined 11.9% from a year ago. All other border states gained: New Mexico 25.5%, California 24.4%, and Texas 1.9%.



Imports through Arizona border ports of entry reflect the composite effects of both the trade between Arizona and Mexico, and other U.S. states that use Arizona's border ports to import goods from Mexico. Also reflected in commodity flow dynamics are the relative infrastructure capacities of the southern border ports of entry.

## U.S. Imports from Mexico

U.S. imports from Mexico traveling via Arizona BPOE declined 2.9% in 2018 to \$16.4 billion. By contrast, imports via New Mexico BPOE increased 20.9% reaching \$14.3 billion. Texas BPOE saw a 10.0% increase to reach \$240.7 billion and California gained 9.4% with imports at \$44.5 billion in 2018 (Table 19).

In 2018, Arizona BPOE share of U.S. imports via southern BPOE was 5.5%, down from 6.2% in 2017 and 8.6% in 2008 (Figure 46).

Imports via the Nogales BPOE gained 18.2% between 2008 and 2018, the smallest decade gain among the major southern BPOE. Laredo gained 107.7%, followed by Hidalgo (75.2%), El Paso (61.0%), Calexico East (59.6%), and Otay Mesa (38.8%) (Figure 47). Santa Teresa, NM, (not shown) grew substantially faster at 1,589.0%.

## How does Arizona compare?

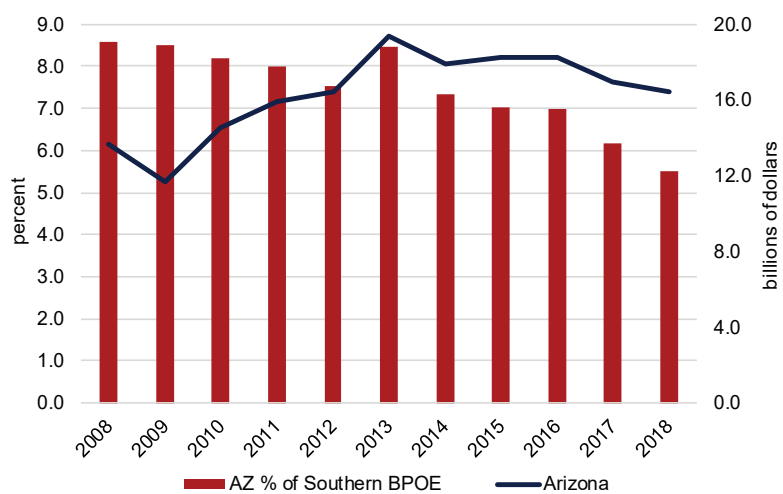
- ▶ 2008-2018: Imports via Nogales BPOE increased 18.2%, the smallest decade gain of any major southern port.
- ▶ In 2018, U.S. imports from Mexico through Arizona BPOE declined 2.9% from 2017 to \$16.4 billion.

Table 19: U.S. Imports via So. Border States (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	13.67	-2.4	30.24	-0.4	0.88	-8.1	143.19	1.3
2009	11.65	-14.8	25.90	-14.4	2.97	236.8	115.05	-19.7
2010	14.53	24.8	28.82	11.3	8.45	184.2	150.27	30.6
2011	15.92	9.5	29.84	3.5	10.38	22.9	175.12	16.5
2012	16.45	3.3	31.19	4.5	11.83	13.9	191.04	9.1
2013	19.34	17.6	32.09	2.9	10.30	-13.0	192.77	0.9
2014	17.90	-7.4	35.73	11.3	9.63	-6.4	204.99	6.3
2015	18.27	2.0	39.90	11.7	11.82	22.7	203.22	-0.9
2016	18.25	-0.1	38.83	-2.7	12.05	1.9	202.87	-0.2
2017	16.92	-7.3	40.64	4.7	11.84	-1.7	218.83	7.9
2018	16.42	-2.9	44.46	9.4	14.31	20.9	240.67	10.0

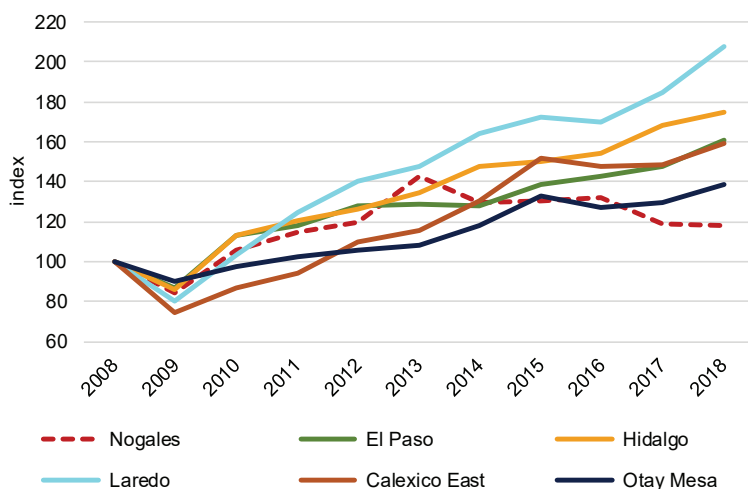
Source: U.S. Census Bureau

Figure 46: U.S. Imports via Arizona BPOE



Source: U.S. Census Bureau

Figure 47: U.S. Imports via So. BPOE (2008=100)



Source: U.S. Census Bureau

# COMMODITY FLOWS



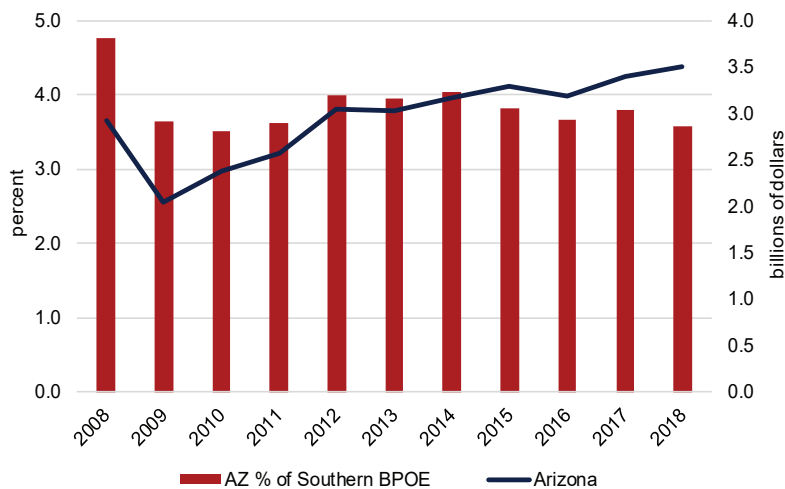
Arizona-Mexico Economic Indicators Annual Report 2019

**Table 20:** U.S. Imports Electric & Electronic Prod. via So. Border States (\$bil)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	2.93	-11.2	17.91	-1.4	0.31	-10.8	41.18	-2.6
2009	2.04	-30.4	15.24	-14.9	2.15	597.1	36.99	-10.2
2010	2.38	16.6	15.84	3.9	7.06	228.4	43.11	16.6
2011	2.56	7.9	15.87	0.2	8.49	20.4	44.72	3.8
2012	3.05	19.0	16.64	4.8	9.94	17.0	47.42	6.0
2013	3.03	-0.6	16.68	0.2	8.47	-14.8	49.06	3.5
2014	3.17	4.8	17.99	7.8	7.73	-8.7	50.19	2.3
2015	3.29	3.6	20.46	13.8	10.11	30.7	53.17	6.0
2016	3.18	-3.3	18.72	-8.5	10.11	0.0	55.41	4.2
2017	3.39	6.5	18.10	-3.3	9.80	-3.1	58.72	6.0
2018	3.50	3.3	18.00	-0.6	12.13	23.9	64.86	10.5

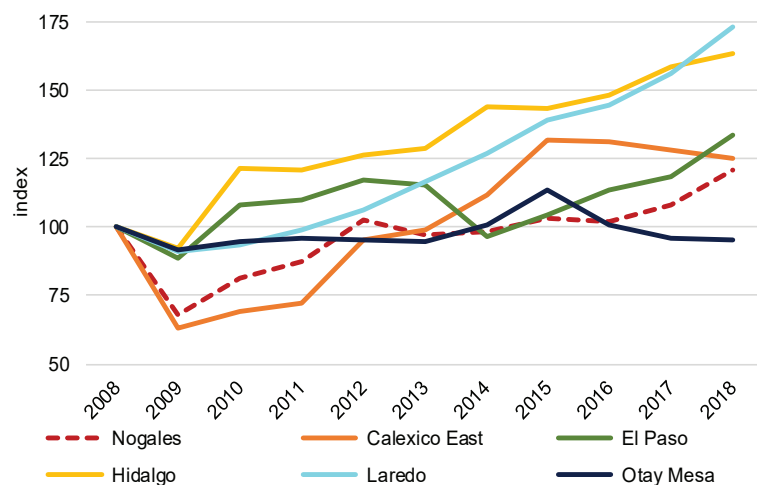
Source: U.S. Census Bureau

**Figure 48:** U.S. Imports of Electric & Electronic Prod. via Arizona BPOE



Source: U.S. Census Bureau

**Figure 49:** U.S. Imports of Electric and Electronic Prod. via So. BPOE (2008=100)



Source: U.S. Census Bureau

**E**lectric and electronic manufacturing products are the top commodity imported via Arizona's border ports of entry, and a key component of the North American production sharing system.



## U.S. Imports of Electric and Electronic Products

Electric and electronic manufacturing imports from Mexico traveling via Arizona BPOE increased from \$3.4 in 2017 to \$3.5 billion in 2018 (up 3.3%). Overall, the value of imports facilitated by Arizona BPOE in this sector are up 19.5% from a decade ago (Table 20).

In 2018, the Arizona BPOE share of product imports in this sector was 3.6%, down from 4.8% in 2008 (Figure 48).

Electric and electronic product imports from Mexico via Nogales increased 20.8% between 2008 and 2018. All other major BPOE also saw increases over the decade, except Otay Mesa (down 4.7%). Laredo led with 73.0% growth, followed by Hidalgo (63.4%), El Paso (33.9%), and Calexico East (25.3%) (Figure 49).

## How does Arizona compare?

- ▶ In 2018, \$3.5 billion in electric and electronic manufacturing products imports via Arizona BPOE, up 3.3% over the year.
- ▶ 2008-2018: Imports via Nogales BPOE increased 20.8%. The only major BPOE to see a decrease in this sector was Otay Mesa.



**A**rizona BPOE are key in the import of cars and transportation equipment from Mexico. The role of the state's ports has been enhanced by the expansion of Ford Motor Company in Sonora, further integrating Arizona's economy into the North American transportation production system.

## U.S. Imports of Transportation Products from Mexico

In 2018, \$4.7 billion worth of transportation products were imported from Mexico via Arizona BPOE, a 14.5% decline from 2017. Arizona was the only southern border state to see a contraction. Imports via California grew 28.5%, followed by New Mexico (14.0%), and Texas (9.2%) (Table 21).

Arizona's share of southern border states total value in this sector was 4.1% in 2018, declining from its 5.2% share in 2017, and from 10.8% in 2008 (Figure 50).

In 2018, Nogales BPOE facilitated sector imports valued at \$4.3 billion, losing 10.9% over the decade. Laredo had the largest volume, \$60.0 billion, for 164.8% growth since 2008, followed by El Paso with \$16.6 billion (up 100.5%), and Eagle Pass with \$15.0 billion (up 225.2%) (Figure 51).

## How does Arizona compare?

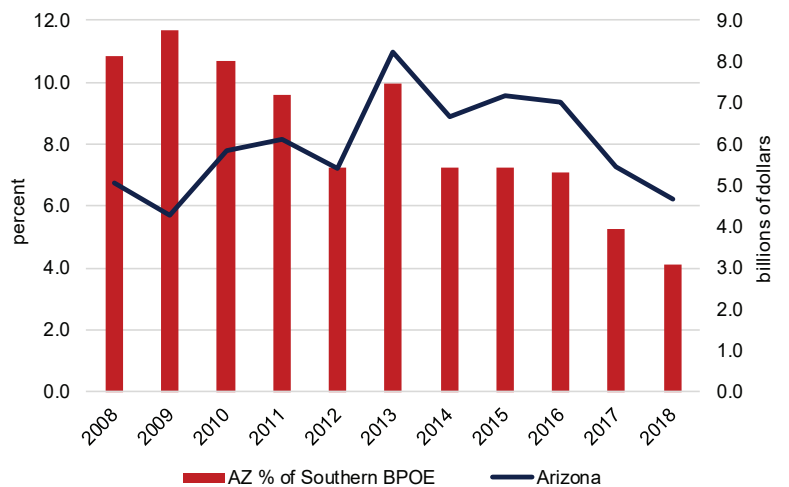
- ▶ In 2018, Arizona's share of border states declined to 4.1% from 5.2% in 2017.
- ▶ 2008-2018: Imports via Nogales decreased 10.9% while transportation sector import value grew at all other major BPOE.

Table 21: U.S. Imports of Transportation Prod. via So. Border States (\$bil)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	5.04	9.6	2.83	7.6	0.16	1.0	38.57	-9.7
2009	4.26	-15.5	2.54	-10.3	0.10	-35.4	29.66	-23.1
2010	5.84	37.1	3.14	23.3	0.15	43.8	45.61	53.8
2011	6.13	5.0	3.52	12.2	0.10	-32.6	54.26	19.0
2012	5.39	-12.0	4.15	17.8	0.13	30.5	64.95	19.7
2013	8.22	52.3	4.55	9.8	0.17	30.3	69.45	6.9
2014	6.68	-18.7	5.87	28.9	0.20	18.8	79.82	14.9
2015	7.16	7.3	7.29	24.3	0.16	-20.1	85.02	6.5
2016	7.00	-2.3	7.91	8.5	0.17	3.3	85.22	0.2
2017	5.46	-21.9	8.80	11.3	0.19	14.3	91.36	7.2
2018	4.67	-14.5	11.31	28.5	0.22	14.0	99.75	9.2

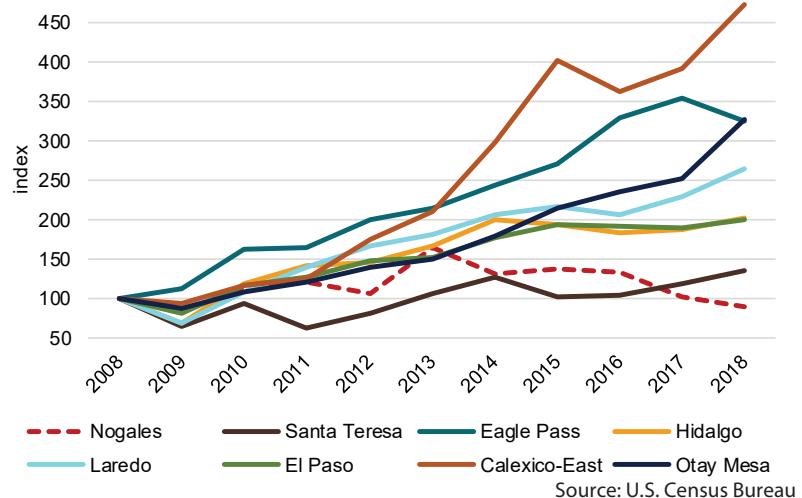
Source: U.S. Census Bureau

Figure 50: U.S. Imports of Transportation Products via Arizona BPOE



Source: U.S. Census Bureau

Figure 51: U.S. Imports of Transportation Products via So. BPOE (2008=100)



Source: U.S. Census Bureau

# COMMODITY FLOWS

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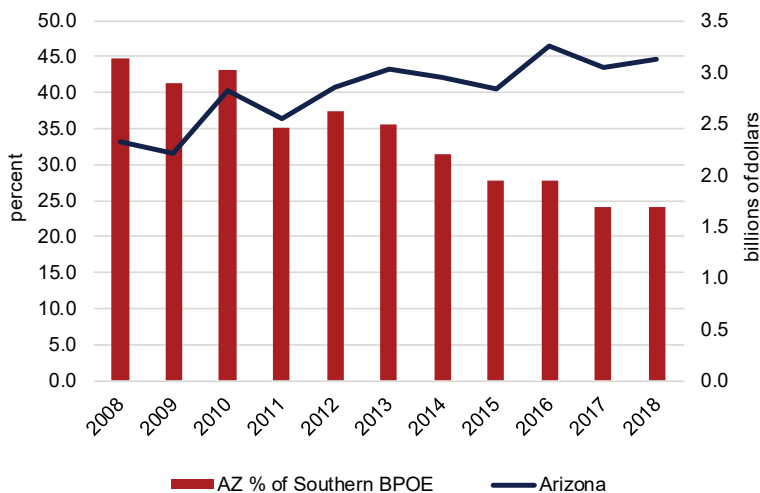


**Table 22:** U.S. Imports of Fresh Produce by State (billions of dollars)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	2.32	-0.4	0.98	6.9	0.05	-0.8	1.85	14.6
2009	2.21	-4.5	0.94	-3.3	0.07	49.7	2.13	14.9
2010	2.81	27.1	1.11	18.0	0.06	-7.4	2.55	19.8
2011	2.54	-9.7	1.30	16.8	0.07	15.1	3.32	30.1
2012	2.85	12.3	1.30	0.0	0.07	-6.6	3.44	3.6
2013	3.04	6.4	1.45	11.8	0.05	-27.0	3.99	16.1
2014	2.95	-2.9	1.52	4.4	0.07	37.8	4.87	22.1
2015	2.84	-3.8	1.70	12.0	0.07	1.8	5.64	15.8
2016	3.25	14.6	1.90	12.1	0.08	20.9	6.51	15.3
2017	3.04	-6.4	2.13	11.8	0.06	-25.8	7.43	14.2
2018	3.13	2.8	2.18	2.6	0.07	4.3	7.74	4.2

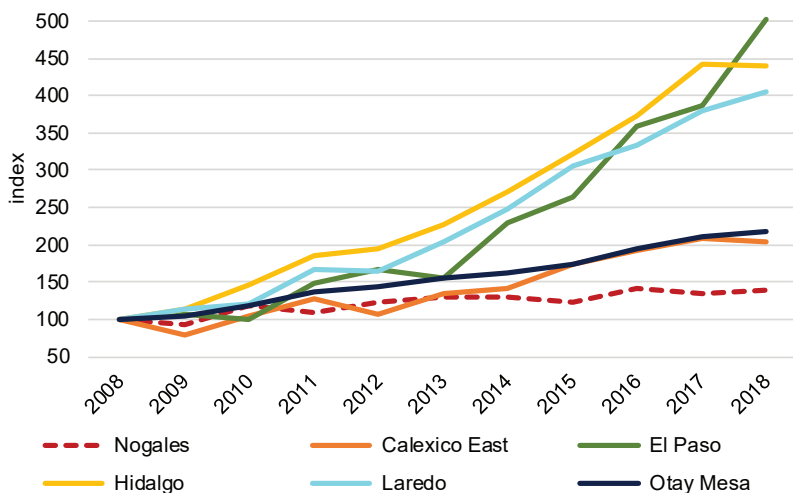
Source: U.S. Census Bureau

**Figure 52:** U.S. Imports of Fresh Produce via Arizona BPOE



Source: U.S. Census Bureau

**Figure 53:** U.S. Imports of Fresh Produce via So. BPOE (2008=100)



Source: U.S. Census Bureau

Arizona border ports of entry have a long tradition of serving as the primary gateway for fresh produce originating in Sinaloa and Sonora. This is particularly true for the Nogales port of entry. The dynamics of fresh produce movement through Arizona BPOE reflect climate-related seasonality of agricultural production in Sinaloa and Sonora, as well as the physical and human infrastructure capabilities of border ports of entry to facilitate efficient and secure movement of fresh produce across the border.

## U.S. Imports of Fresh Produce from Mexico

In 2018, Arizona BPOE facilitated \$3.1 billion in fresh produce imports from Mexico, up 2.8% from a year ago. Nogales port alone imported \$2.9 billion (Table 22).

Historically, the majority of fresh produce entering the U.S. from Mexico entered via Arizona BPOE. In 2011, Texas surpassed Arizona. In 2018, Arizona BPOE value share of Mexican fresh produce imported via southern BPOE was 24.0%, a decrease from its 44.7% share a decade ago (Figure 52).

Between 2008 and 2018, produce traffic via Nogales port grew 38.5%. However, this important sector grew far faster at all other major southern BPOE: El Paso grew 401.6%, Hidalgo 338.9%, Laredo 304.9%, Otay Mesa 117.9%, and Calexico East 104.7% (Figure 53).

Imports of fresh produce from Mexico have a distinctive seasonal



character with peaks during winter months from December through May (Figure 54).

Of the top three BPOE importing fresh produce from Mexico, Nogales has by far the largest seasonal shift with 71.3% of produce imported from December through May compared to 60.1% at Hidalgo, and 57.6% via Laredo, in 2018 (Table 23 and Figure 55).

Hidalgo surpassed Nogales BPOE for imports of winter produce for the first time in 2017 (Figure 55). At the beginning of the decade (2008), Nogales produce imports were valued at \$2.1 billion. Hidalgo placed a distant second at \$0.9 billion. Despite this disparity, by 2015 Hidalgo had surpassed Nogales importing \$3.0 billion in fresh produce compared to \$2.6 billion at Nogales. This shift is largely due to the rise in avocado imports which currently favor Texas BPOE. In 2018, Hidalgo port facilitated \$4.1 billion, Nogales \$2.9 billion, Laredo \$2.7 billion, and Otay Mesa \$1.4 billion worth of fresh produce.

## How does Arizona compare?

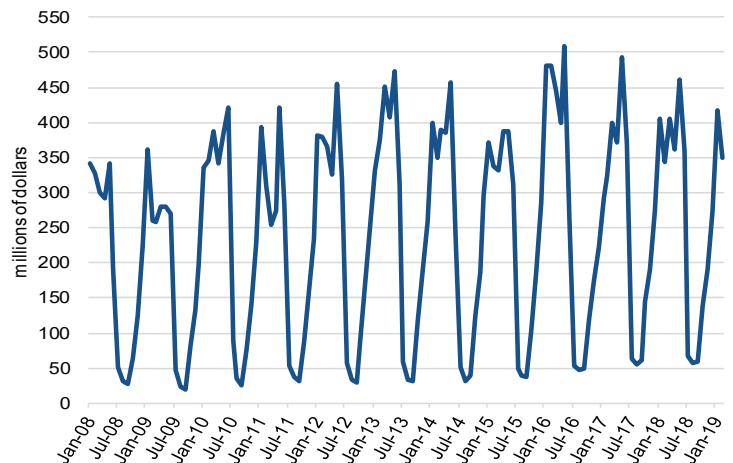
- ▶ 2008-2018: Arizona's share of fresh produce imports declined from 44.7% to 24.0%.
- ▶ In 2018, Hidalgo BPOE facilitated \$4.1 billion in fresh produce imports from Mexico, Nogales \$2.9 billion, and Laredo \$2.7 billion.
- ▶ Hidalgo surpassed Nogales in winter fresh produce imports for the first time in 2017.

Table 23: Monthly U.S. Imports of Fresh Produce via Major So. BPOE (\$mil)

	Nogales	Hidalgo	Laredo
Mar-18	370.8	442.9	270.0
Apr-18	350.5	388.8	265.6
May-18	455.7	339.3	226.7
Jun-18	355.2	264.2	173.0
Jul-18	64.1	233.4	154.0
Aug-18	52.7	279.8	182.9
Sep-18	55.8	229.2	165.9
Oct-18	136.6	293.4	217.9
Nov-18	181.7	360.0	233.5
Dec-18	258.7	357.2	266.3
Jan-19	382.2	466.5	341.5
Feb-19	286.6	418.7	328.1

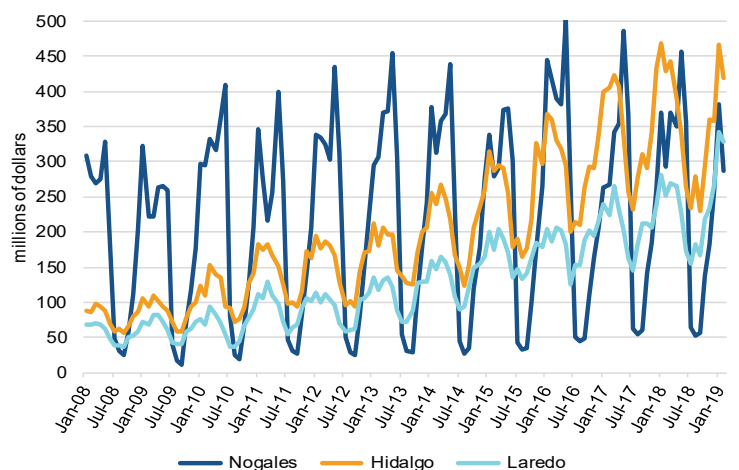
Source: U.S. Census Bureau

Figure 54: U.S. Imports of Fresh Produce via Arizona BPOE



Source: U.S. Census Bureau

Figure 55: U.S. Imports of Fresh Produce via Major So. BPOE



Source: U.S. Census Bureau

# EXPORT-BASED ECONOMY

Arizona-Mexico Economic Indicators Annual Report 2019

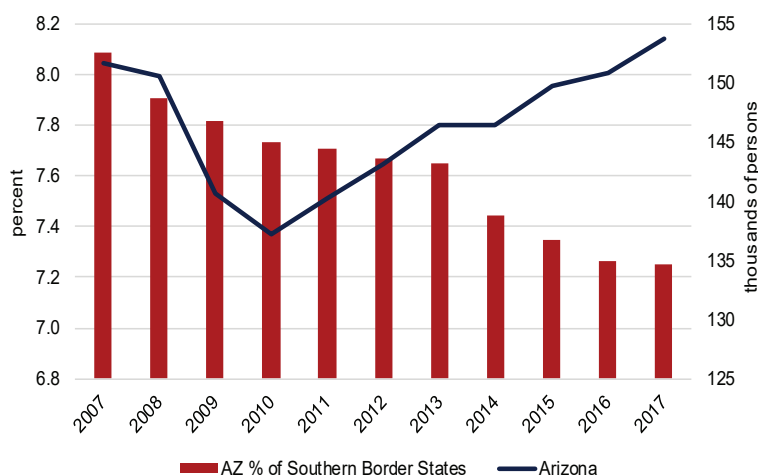
**Table 24:** Employment in High-Tech Manufacturing Industries (000s)

	AZ	%ch	CA	%ch	NM*	%ch	TX	%ch
2007	151.6		1,099.6		56.9		567.4	
2008	150.5	-0.7	1,114.0	1.3	55.6	-2.3	583.4	2.8
2009	140.7	-6.5	1,054.1	-5.4	53.3	-4.2	551.0	-5.6
2010	137.1	-2.5	1,042.1	-1.1	52.5	-1.5	541.7	-1.7
2011	140.2	2.2	1,065.0	2.2	52.4	-0.2	561.0	3.6
2012	143.2	2.1	1,093.9	2.7	50.7	-3.3	579.7	3.3
2013	146.4	2.3	1,122.0	2.6	49.8	-1.7	596.0	2.8
2014	146.5	0.1	1,161.8	3.5	48.9	-1.8	611.5	2.6
2015	149.8	2.3	1,218.7	4.9	49.5	1.3	620.4	1.4
2016	150.8	0.7	1,254.9	3.0	49.4	-0.3	620.8	0.1
2017	153.8	2.0	1,287.7	2.6	49.8	0.9	629.6	1.4

Source: U.S. Bureau of Labor Statistics, QCEW, and EBRC

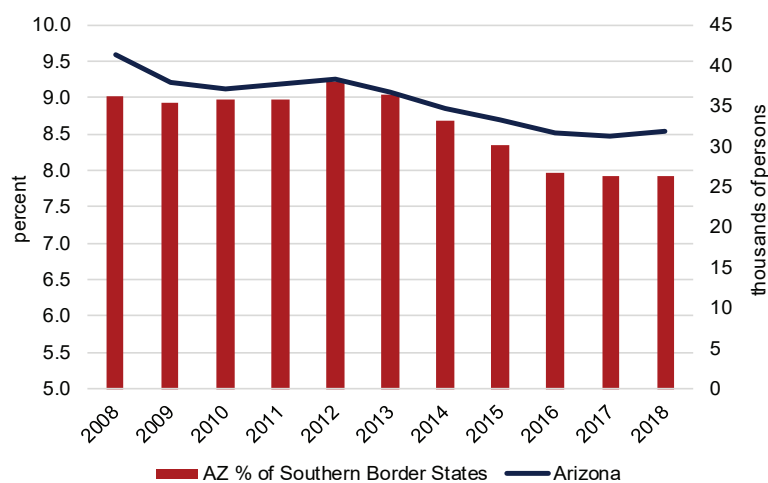
**H**igh-tech manufacturing is a pivotal driver of Arizona's export-based economy. In addition to its increasingly important role in international trade, high-tech industries are characterized by higher productivity, highly skilled workers, and higher wages. The dynamics of Arizona's employment in high-tech manufacturing industries provide a measure of Arizona's capacity to build and sustain an export-based economy.

**Figure 56:** Arizona High-Tech Manufacturing Employment



Source: U.S. Bureau of Labor Statistics, QCEW, and EBRC

**Figure 57:** Arizona Computer and Electronic Prod. Mfg. Employment



Source: U.S. Bureau of Labor Statistics, CES

## Arizona's Employment

Arizona's high-tech manufacturing industries employed 153,757 people in 2017 (the latest full year of data).<sup>\*</sup> This was an increase of 2,942 workers, or 2.0%, from 2016. High-tech manufacturing includes occupational categories such as pharmaceutical and medicine, computer and peripheral communications equipment, semiconductor and electronics, electronic instrument, aerospace, and software publishing. In 2017, high-tech manufacturing employment finally surpassed its pre-recession (2007) level of 151,600 employees (Table 24).

Despite this recovery, Arizona's share of high-tech manufacturing employment in U.S. border states declined from 8.1% in 2007 to 7.2% in 2017 (Figure 56).

Arizona's computer and electronic manufacturing sector employed 31,900 persons in 2018, up 1.9% from 2017.<sup>\*</sup> Arizona has also maintained its share of sector employment in U.S. border states since 2016 (Figure 57).



# EXPORT-BASED ECONOMY

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In 2018, Arizona's aerospace manufacturing industries posted 28,000 jobs, a 5.3% gain over the year. Despite gains over the last two years, this sector is still 3.1% below its level of a decade ago (Table 25).

Arizona's share of U.S. border states' aerospace products and parts manufacturing employment was 18.6% in 2018, still below its 2009 peak, but on par with its share from a decade ago (Figure 58).

Although small in absolute numbers, employment in the pharmaceutical and medicine products manufacturing sector has experienced rapid growth: 133.4% over the decade. This high-value sector gained 13.6% in 2017.\* Arizona's share of U.S. border states increased from 2.0% in 2007 to 3.8% by 2017 (Figure 59).

\*"High-Tech Manufacturing" total employment and "Pharmaceutical and Medicine Products Manufacturing" employment are custom aggregations constructed using the Quarterly Census of Employment and Wages (QCEW), BLS. The most current full year of available QCEW data is 2017; data for New Mexico is underestimated due to exclusion of smaller categories (not disclosed for privacy). Aerospace and the Computer and Electronic Products Manufacturing employment is from the Current Employment Statistics (CES), BLS, and is complete through 2018.

## How does Arizona compare?

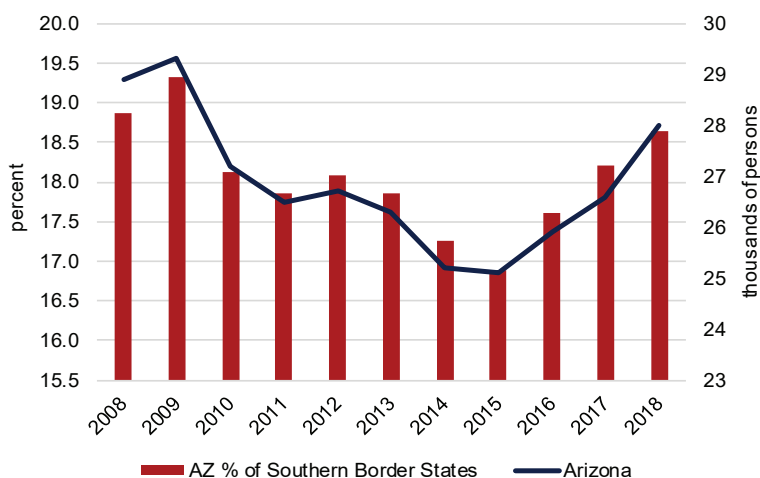
- ▶ In 2017, high tech manufacturing employment in Arizona finally surpassed pre-recession levels.
- ▶ 2007-2017: Arizona's share of high-tech employment eroded.

Table 25: Employment in Aerospace Products and Parts Mfg. (000s)\*

	AZ	%ch	CA	%ch	TX	%ch
2008	28.9	5.9	75.6	1.3	48.7	1.5
2009	29.3	1.4	74.3	-1.7	48.0	-1.4
2010	27.2	-7.2	74.8	0.7	48.1	0.2
2011	26.5	-2.6	73.4	-1.9	48.5	0.8
2012	26.7	0.8	73.0	-0.5	48.0	-1.0
2013	26.3	-1.5	73.7	1.0	47.3	-1.5
2014	25.2	-4.2	75.9	3.0	45.0	-4.9
2015	25.1	-0.4	78.5	3.4	45.0	0.0
2016	25.9	3.2	76.6	-2.4	44.6	-0.9
2017	26.6	2.7	75.3	-1.7	44.2	-0.9
2018	28.0	5.3	75.9	0.8	46.3	4.8

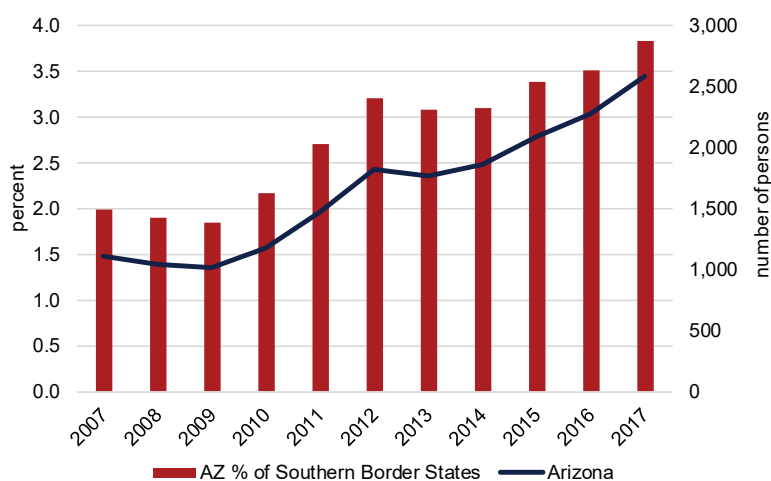
\*BLS does not report employment in this category for New Mexico because it is negligible.  
Source: Bureau of Labor Statistics, CES

Figure 58: Arizona Aerospace Prod. and Parts Mfg. Employment



Source: U.S. Bureau of Labor Statistics, CES

Figure 59: Arizona Pharmaceutical and Medicine Prod. Mfg. Employment



Source: U.S. Bureau of Labor Statistics, QCEW

# EXPORT-BASED ECONOMY

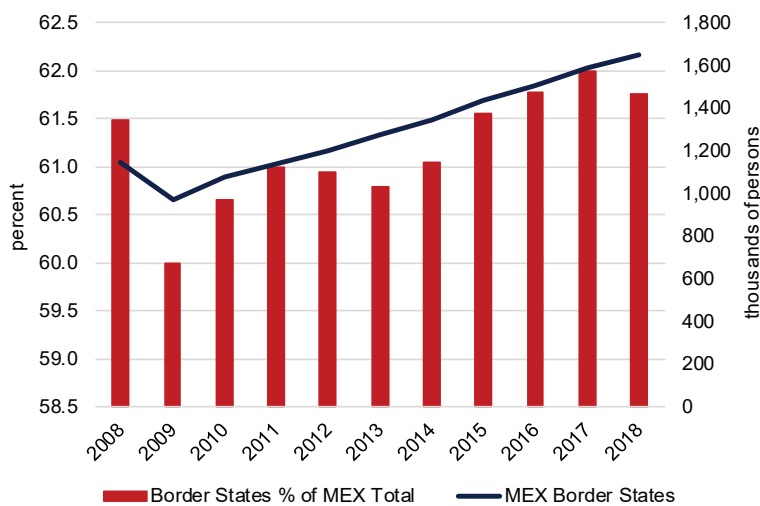
Arizona-Mexico Economic Indicators Annual Report 2019

**Table 26:** Mexico Border States IMMEX (Maquiladora) Employment (000s)

YEAR	B.C.	Coah.	Chih.	N.L.	Son.	Tamps.
2008	246.5	157.0	271.1	198.7	95.4	179.8
2009	206.3	131.8	218.4	186.9	81.9	145.1
2010	218.8	154.7	244.8	212.5	90.8	152.0
2011	221.3	175.9	251.4	228.1	97.2	160.8
2012	231.7	192.3	271.1	234.2	102.1	169.7
2013	245.6	209.1	289.9	239.1	110.6	179.9
2014	265.1	223.2	308.2	246.7	112.1	190.8
2015	284.8	237.6	339.1	258.8	112.0	201.3
2016	300.8	246.8	357.3	265.3	119.5	213.6
2017	319.8	258.8	376.8	276.9	129.2	228.7
2018	332.3	276.5	375.3	290.3	128.8	243.6

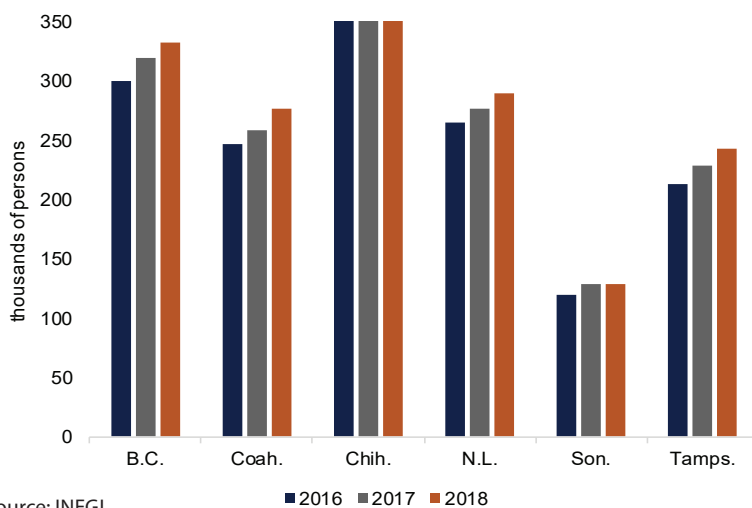
Source: INEGI

**Figure 60:** Mexico Border States Total IMMEX Employment



Source: INEGI

**Figure 61:** Mexico Border States IMMEX (Maquiladora) Employment



Source: INEGI

**M**aquiladora plants, together with other companies producing products for export, including automobile manufacturers, form IMMEX program employment. IMMEX accounts for more than 80.0% of all manufacturing exports from Mexico and the largest share of trade between the U.S. and Mexico. The majority of IMMEX employment is concentrated in border states.

## IMMEX (Maquiladora) Employment in Mexico

The Maquiladora Program was initiated in the mid-1960s, and continued to grow under NAFTA. By 2006, maquiladoras employed 1.2 million people. The PITEX Program was established in 1990 and by 2006 included all motor vehicle assembly plants and most of their parts suppliers in Mexico. The two programs merged in 2006 creating the IMMEX program.

In 2018, IMMEX employment in Mexico's border states was 1,646,835, up 3.6% from a year ago; nationwide, IMMEX employment increased 4.0%. Employment in this sector has risen steadily post recession (Table 26), as has the percent share of IMMEX employment in the border states which was 61.8% in 2018 (Figure 60).

In 2018, almost all Mexican border states experienced robust growth in IMMEX employment: Coahuila de Zaragoza led at 6.8% over the year, followed by Tamaulipas (6.5%), Nuevo León (4.8%), and Baja California (3.9%). Chihuahua and Sonora



slightly decreased from 2017, down 0.4% and 0.3% respectively. Chihuahua employed the largest number of IMMEX workers with 375,273, and Sonora the fewest with 128,825 (Figure 61).

Sonora's IMMEX employment reached 128,825 in 2018, slightly down from its 2017 peak of 129,249, and a 35.0% increase from 2008 (the first full year of data available for this report) (Table 27).

In 2018, Sonora's share of the border states total was 7.8%, this was below its 8.3% share in 2008, and its peak of 8.7% in 2013 (Figure 62).

Between 2008 and 2018, IMMEX employment in Coahuila grew 76.2%, followed by Nuevo León (46.1%), Chihuahua (38.4%), Tamaulipas (35.4%), Sonora (35.0%), and Baja California (34.8%). Nationwide IMMEX employment in Mexico grew 42.8% during the same period (Figure 63).

## How does Sonora compare?

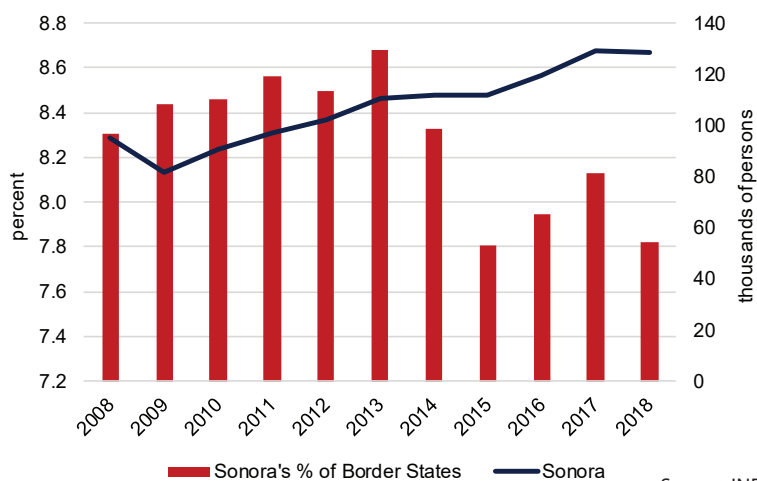
- ▶ In 2018, Sonora fell behind most other border states in IMMEX employment annual growth with a -0.3% dip.
- ▶ Sonora's IMMEX employment grew 35.0% between 2008 and 2018.

**Table 27:** Sonora and Mexico IMMEX (Maquiladora) Employment (000s)

YEAR	Son.	Son. % of Border States	Border States	Mexico Total
2008	95.4	8.3	1,148.5	1,867.8
2009	81.9	8.4	970.5	1,617.7
2010	90.8	8.5	1,073.6	1,770.3
2011	97.2	8.6	1,134.5	1,859.9
2012	102.1	8.5	1,201.1	1,970.7
2013	110.6	8.7	1,274.2	2,095.9
2014	112.1	8.3	1,346.1	2,205.2
2015	112.0	7.8	1,433.6	2,328.8
2016	119.5	7.9	1,503.2	2,433.6
2017	129.2	8.1	1,590.3	2,565.4
2018	128.8	7.8	1,646.8	2,666.9

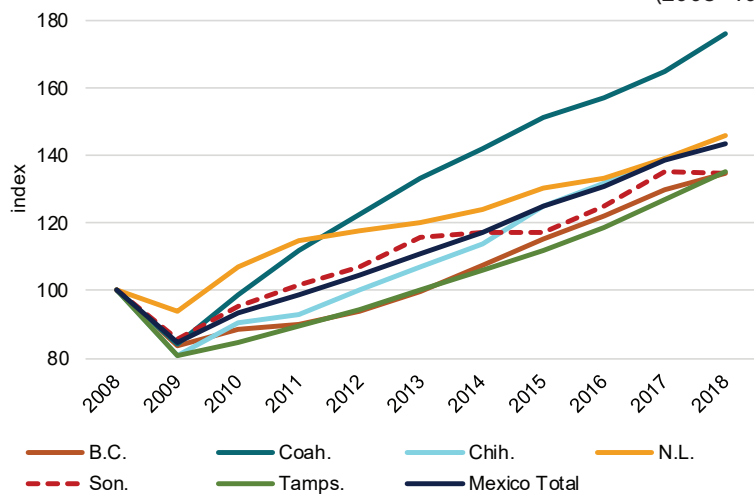
Source: INEGI

**Figure 62:** Sonora IMMEX (Maquiladora) Employment



Source: INEGI

**Figure 63:** IMMEX (Maquiladora) Employment Mexico Border States (2008=100)



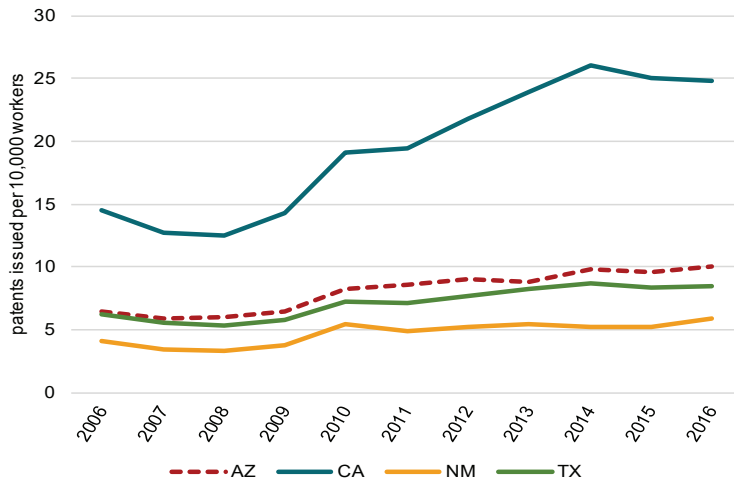
Source: INEGI

# KNOWLEDGE-BASED ECONOMY



Arizona-Mexico Economic Indicators Annual Report 2019

Figure 64: Patents



Source: U.S. Patent and Trademark Office

Table 28: Number of Engineers (000s)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	29.7	2.5	216.4	-1.2	11.2	6.7	139.2	14.2
2009	27.6	-7.1	209.4	-3.2	11.9	6.6	139.5	0.2
2010	29.5	6.9	204.2	-2.5	12.5	4.9	132.7	-4.8
2011	30.3	3.0	205.6	0.7	12.3	-1.7	133.7	0.7
2012	31.3	3.2	215.0	4.6	12.1	-1.9	142.6	6.7
2013	30.8	-1.7	221.9	3.2	12.6	4.5	144.1	1.0
2014	30.0	-2.6	225.0	1.4	12.4	-1.7	144.9	0.6
2015	29.2	-2.6	224.7	-0.1	13.5	9.1	144.2	-0.5
2016	30.9	6.0	218.6	-2.7	12.1	-10.7	146.4	1.5
2017	31.3	1.3	223.1	2.1	11.6	-3.9	148.0	1.1
2018	32.5	3.6	230.4	3.3	10.7	-8.2	149.1	0.7

Source: U.S. Bureau of Labor Statistics, OES

Table 29: Number of Life and Physical Scientists (000s)

	AZ	%ch	CA	%ch	NM	%ch	TX	%ch
2008	5.6	17.1	77.9	16.5	2.7	31.2	38.0	-8.9
2009	6.9	23.6	79.5	2.0	3.1	15.2	38.3	-5.6
2010	6.9	0.1	81.6	2.7	2.5	-19.0	37.1	11.6
2011	6.2	-9.5	87.5	7.2	3.8	53.0	38.0	5.6
2012	6.5	4.5	90.9	3.9	3.7	-3.4	38.3	0.8
2013	7.5	14.6	98.1	7.9	4.1	9.7	37.1	-3.2
2014	7.4	-1.1	95.9	-2.2	4.1	0.2	38.9	5.0
2015	6.8	-7.2	91.2	-4.9	4.5	9.1	36.4	-6.4
2016	6.5	-5.4	91.5	0.4	5.1	15.3	36.3	-0.3
2017	6.3	-3.1	89.5	-2.3	5.2	1.4	35.0	-3.6
2018	6.1	-2.1	93.8	4.8	5.2	0.6	35.0	3.0

Source: U.S. Bureau of Labor Statistics, OES

**K**nowledge drives productivity and economic growth, generates new or improved products and services, contributes to technological change, and enhances living standards. The knowledge economy can be measured in terms of the number of “knowledge workers” such as engineers and scientists, or also in terms of overall human capital based on educational level.



## Patents

In 2016, Arizona posted a patent rate of 10.0 patents per 10,000 workers. This ranked Arizona second among the border states and equal to the national rate. California ranked first at 24.8, then Texas at 8.4, and New Mexico ranked last at 5.9 patents. Arizona has seen steady increases in the number of patents issued per worker since 2008 (Figure 64). Note that 2016 is the last available year of patent data.

## Engineering and Science Occupations

In 2018, there were 32,450 workers in engineering occupations in Arizona, a 3.6% increase from 2017. California gained 3.3% in this category, Texas 0.7%, and New Mexico lost 8.2% (Table 28).

There were 6,140 life and physical scientists working in Arizona in 2018, down 2.1% from 2017, and the fifth consecutive year of decline. All other border states grew in numbers of scientists employed in the state, with California having the most growth at 4.8% (Table 29).





# KNOWLEDGE-BASED ECONOMY

Arizona-Mexico Economic Indicators Annual Report 2019

## Educational Attainment

Regions with better-educated workers show higher GDP per capita and real wages overall. These regions also compete more successfully for high-tech industries.

In 2017, 29.4% of Arizona's population 25 years and older had earned a bachelor's degree or higher, up from 27.3% in 2012, and 23.5% recorded in Census 2000. The figures for 2012 and 2017 are one-year estimates from the American Community Survey. **Figure 65** shows Arizona, New Mexico, and Texas were very similar in 2000, but New Mexico subsequently fell behind while Texas and Arizona tracked each other closely.

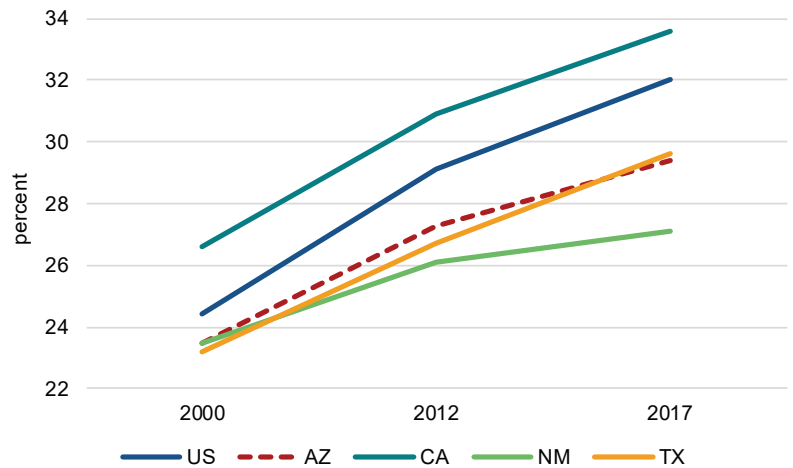
Arizona has made progress since Census 2000, but its gap with the nation has widened. Tech powerhouse California continues to dwarf the other border states and the nation in educational attainment.

**Table 30 and Figure 66** show Arizona behind California, the US, and Texas for the rate of bachelor degrees in 2017. The rate of graduate and professional degree holders for Arizona lagged California, New Mexico, and the nation, but was higher than Texas.

### How does Arizona compare?

- ▶ 2008-2018: Arizona gained 9.4% in engineering occupations, while Texas gained 7.1%, and California 6.5%; New Mexico lost 4.7%.
- ▶ 2000 -2017: Arizona's percent of population 25+ years with a bachelor degree or higher has increased from 23.5% in 2000 to 29.4% in 2017.

**Figure 65:** Percent of Population 25+ Years with Bachelor Degree or Higher



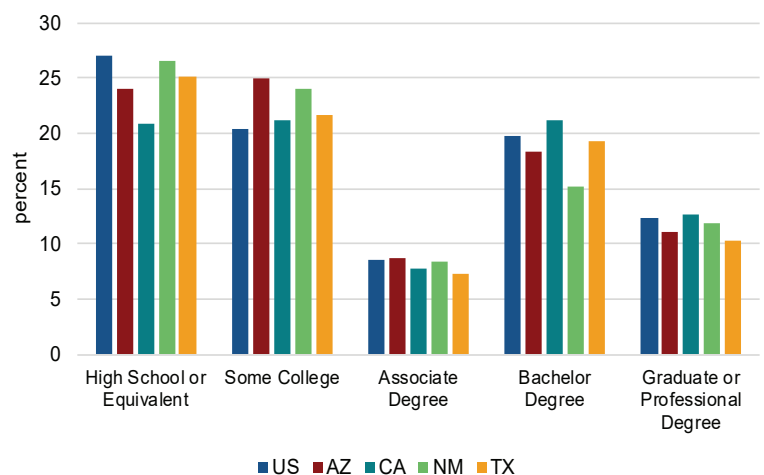
Source: U.S. Census Bureau

**Table 30:** Educational Attainment Level as Percent of Population 25+ Years (2017)

	US	AZ	CA	NM	TX
High School or Equivalent	27.1	24.1	20.8	26.6	25.1
Some College	20.4	25.0	21.1	24.0	21.7
Associate Degree	8.5	8.7	7.8	8.4	7.3
Bachelor Degree	19.7	18.3	21.1	15.2	19.3
Graduate or Professional Degree	12.3	11.0	12.6	11.8	10.3

Source: U.S. Census Bureau

**Figure 66:** Educational Attainment Level as Percent of Population 25+ Years (2017)



Source: U.S. Census Bureau

# FOREIGN DIRECT INVESTMENT



Arizona-Mexico Economic Indicators Annual Report 2019

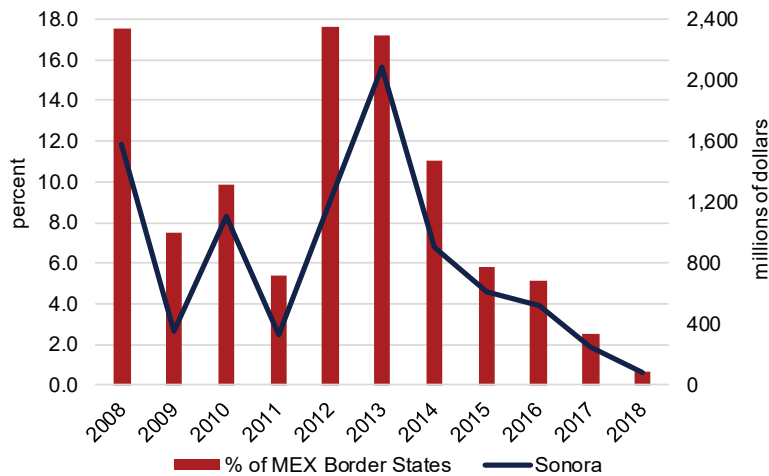
**Table 31:** FDI Sonora, Sinaloa, and Mexico Total (millions of dollars)

YEAR	Sinaloa	Sonora	Mexico Total
2008	174.8	1,573.9	29,465.6
2009	148.5	357.2	18,186.6
2010	222.0	1,108.8	27,336.8
2011	237.2	328.7	25,366.4
2012	437.7	1,199.4	21,958.3
2013	625.5	2,089.0	48,503.9
2014	401.2	907.4	29,591.4
2015	440.2	610.8	35,863.2
2016	432.1	519.2	30,865.4
2017	760.7	253.5	32,090.8
2018	399.1	80.8	31,604.3

Source: INEGI

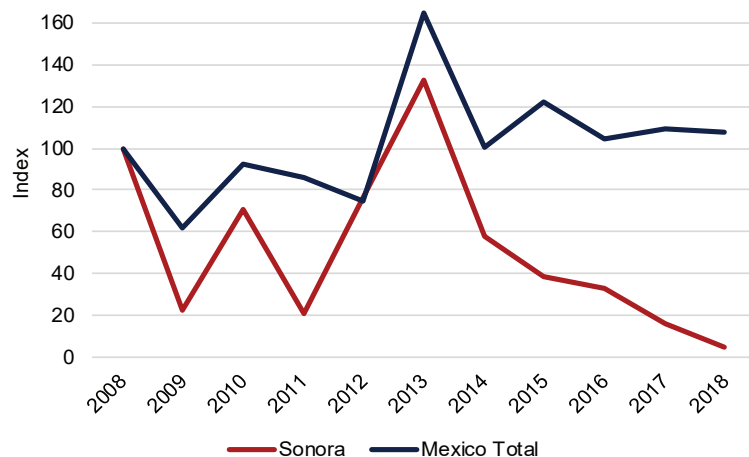
**F**oreign Direct Investment (FDI) is a key characteristic of international economic integration. Its importance to a host country is that it brings additional capital, creates jobs, and encourages the transfer of technology. Benefits to investor countries include access to an expanded labor force, and expanded opportunities for promotion of products in international markets. Mexico ranks among the top developing countries in the attraction of foreign investors seeking to expand into the NAFTA area.

**Figure 67:** Sonora FDI



Source: INEGI

**Figure 68:** Sonora and Mexico FDI (2008=100)



Source: INEGI

## Foreign Direct Investment

In 2018, Sonora garnered \$80.8 million in foreign direct investment (FDI), the lowest FDI value of all Mexican border states. This was a decline of 68.1% from \$253.5 million in 2017. FDI in Sonora has declined steadily since hitting a peak of \$2.1 billion in 2013 (Table 31).

Nuevo Leon led the border states in 2018 with \$4.3 billion, followed by Coahuila de Zaragoza with \$2.7 billion, Baja California with \$1.5 billion, Tamaulipas with \$1.4 billion, and Sinaloa \$0.40 billion.

Sonora's percent share of the Mexican border state total peaked in 2012 at 17.6%. Its share was 0.7% in 2018 (Figure 67).

Foreign direct investment in Sonora has fluctuated significantly between 2008 and 2018. Sonora tracked Mexico's volatility somewhat until FDI at the state level began to drift downward in 2015 (Figure 68). FDI increases from 2011 to 2013 can be largely attributed to expansion of the automotive sector in Mexico.



# DATA SOURCES

Arizona-Mexico Economic Indicators Annual Report 2019

## Population

Arizona Office of Employment and Population Statistics, Arizona Department of Administration: [laborstats.az.gov](http://laborstats.az.gov)

Instituto Nacional de Estadística y Geografía (INEGI), Banco de Información Económica (BIE): [www3.inegi.org.mx](http://www3.inegi.org.mx)

U.S. Census Bureau, Population Division: [www.census.gov](http://www.census.gov)

U.S. Census Bureau, American Community Survey: [www.census.gov](http://www.census.gov)

## Border Crossings

U.S. Department of Transportation, Office of the Assistant Secretary for Research and Technology (RITA), Bureau of Transportation Statistics (BTS): [www.bts.gov](http://www.bts.gov)

## Economic Output

U.S. Department of Commerce, Bureau of Economic Analysis: [www.bea.gov](http://www.bea.gov)

Instituto Nacional de Estadística y Geografía (INEGI), Banco de Información Económica (BIE): [www3.inegi.org.mx](http://www3.inegi.org.mx)

Economic Business and Research Center, Eller College of Management, The University of Arizona: [ebr.eller.arizona.edu](http://ebr.eller.arizona.edu)

## Exports to Mexico and Canada

U.S. Census Bureau via USA Trade: [usatrade.census.gov](http://usatrade.census.gov)

## Commodity Flows

U.S. Census Bureau via USA Trade: [usatrade.census.gov](http://usatrade.census.gov)

## Export-Based Economy

U.S. Department of Labor, Bureau of Labor Statistics (BLS): [www.bls.gov](http://www.bls.gov)

Current Employment Statistics (CES): [www.bls.gov/ces](http://www.bls.gov/ces)

Quarterly Census of Employment And Wages (QCEW): [www.bls.gov/cew/cewover.htm](http://www.bls.gov/cew/cewover.htm)

Instituto Nacional de Estadística y Geografía (INEGI), Banco de Información Económica (BIE): [www3.inegi.org.mx](http://www3.inegi.org.mx)

## Knowledge-Based Economy

U.S. Patent and Trademark Office: [www.uspto.gov](http://www.uspto.gov)

National Science Foundation: [www.nsf.gov](http://www.nsf.gov)

U.S. Department of Labor, Bureau of Labor Statistics (BLS): [www.bls.gov](http://www.bls.gov)

U.S. Census Bureau, American Fact Finder: [www.factfinder.census.gov](http://www.factfinder.census.gov)

## Foreign Direct Investment

Instituto Nacional de Estadística Y Geografía (INEGI), Banco de Información Económica (BIE): [www3.inegi.org.mx](http://www3.inegi.org.mx)

**Find the complete Arizona-Mexico Economic Indicators at:**  
**[AZMEX.eller.arizona.edu](http://AZMEX.eller.arizona.edu)**