

TECH PARKS ARIZONA



The **Economic Impact** Report  
for the **UA TECH PARK**

35%





# ECONOMIC IMPACTS OF THE UA TECH PARK CALENDAR YEAR 2017

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## Table of Contents

Introduction .....	1
Impacting Pima County: Direct jobs, wages, and output .....	1
Indirect and induced impacts .....	2
Total impact on Pima County's economy .....	2
Multipliers .....	3
Impacts on Arizona's economy .....	3
Contributions to state and local tax revenues .....	4
Place of residence of UA Tech Park employees .....	4
Data and Methodology .....	5

## List of Charts

Economic Impacts of UA Tech Park in Pima County, 1997-2017 (Dollars in millions) .....	6
Economic Impact 2017 Compared to Previous Studies (% Change) .....	7
Number of Tenants, 1997-2017, by Survey Year .....	8
Total Annual Job Impacts, 1997-2017 .....	8
Total Annual Wage (Labor Income) Impacts, 1997-2017 .....	9
Total Annual Dollar (Output) Impacts, 1997-2017 .....	9
Total Annual Tax Revenue Impacts, 1997-2017 .....	10
UA Tech Park: Comparison with Pima County .....	10
Annual Tenant Survey .....	11
References .....	12
About the Author .....	13



# ECONOMIC IMPACTS OF THE UA TECH PARK, CALENDAR YEAR 2017

## Introduction

Economic impacts of an organization, industry, or a cluster of economic activities such as a university research park are commonly measured in terms of jobs, wages, and total output that these economic entities generate in local and regional economies.

**Direct jobs** (and associated direct wages and direct output) of the UA Tech Park reflect the actual size and volumes of production of goods and services of all tenants. This is also referred to as the direct contribution to the regional economy.

**Indirect and induced impacts** (jobs, wages, and output) are generated through relationships with other sectors in the local economy by way of purchasing goods and services for business operations, and household needs. These impacts depend not only on the changes in direct jobs, wages, and outcome at the UA Tech Park, but primarily reflect changes in the complex inter-industry relationships in the entire economy of Pima County and the rest of Arizona.

## Impacting Pima County: Direct jobs, wages, and output

In 2017, the UA Tech Park had 52 tenants representing more than 15 different industries such as guided missiles; semiconductor manufacturing; surgical appliance and supplies manufacturing; search, detection, and navigation instruments manufacturing; scientific research and development services; data processing, and business support services. In addition, a number of tenants provided maintenance services, and support to Park’s employees, such as food services.

The total number of persons employed in 2017 was 5,870 which included regular and contract employees of the established tenants, as well as the personnel in start-up companies within the Arizona Center for Innovation. The direct contribution to the Pima County economy was \$465.3 million in labor income. The total direct output (including labor income) was \$1,108.6 million. (Exhibit 1)

### Exhibit 1

#### UA Tech Park: Direct impact in Pima County 2017

Number of employees .....	5,870
Payroll .....	\$465.3 million
Output (including payroll) .....	\$1,108.6 million

Source: Annual tenant survey; IMPLAN model of Pima County

Indirect and induced impacts

The local inputs into daily operations at the UA Tech Park together with employee spending in the local economy generated an additional 4,541 jobs in Pima County. The indirect and induced dollar impact (output) was \$589.9 million, of which \$199.4 million was labor income. (Exhibit 2)

Exhibit 2

UA Tech Park: Indirect & induced impacts in Pima County 2017

Number of jobs .....	4,541
Wages .....	\$199.4 million
Output (including wages) .....	\$589.9 million

Source: IMPLAN model of Pima County

Total impact on Pima County’s economy

In 2017, the total number of jobs in the Pima County economy associated with the activities at the UA Tech Park was 10,460. The Park contributed a total of \$666.9 million in wages, and an overall contribution to the County’s output in the amount of \$ 1,704.6 million. Included in these figures are impacts of construction activity which generated \$6.1 million in output, \$2.1 million in wages, and 49 jobs in Pima County. (Exhibit 3)

Exhibit 3

UA Tech Park: Total economic impacts in Pima County 2017

(Including construction-related)

Jobs .....	10,460
Wages .....	\$666.9 million
Total output .....	\$1,704.6 million
(including wages)	

Source: IMPLAN model of Pima County



## Multipliers

The overall economic impact of the UA Tech Park on the economy of Pima County in 2017 is expressed in terms of multipliers. (Exhibit 4)

### Exhibit 4

#### **UA Tech Park: Composite multipliers 2017**

(Including construction-related activities)

Job multiplier .....	1.782
Wage multiplier .....	1.433
Output multiplier .....	1.532

Source: IMPLAN model of Pima County

The multipliers suggest that every job at the UA Tech Park generated 0.7 (or 78 per every 100) additional jobs in Pima County; every one dollar in wages generated an additional 43 cents in wages, while every dollar in the Park's output generated an additional 53 cents elsewhere in Pima County.

## Impacts on Arizona's economy

The economic impacts of the UA Tech Park are felt throughout the entire state of Arizona. The total number of jobs in Arizona supported by the activity of the UA Tech Park was 11,752 in 2017. This figure includes direct jobs at the UA Tech Park premises and all indirect and induced jobs generated through purchases of industrial inputs and consumer spending in Pima County and the rest of Arizona. Statewide, UA Tech Park activities generated a total of \$1,984.5 million in output, of which \$769.0 million is in wages. (Exhibit 5)

### Exhibit 5

#### **UA Tech Park: Total impacts on Arizona's economy in 2017**

(Including construction-related activity)

Jobs .....	11,752
Wages .....	\$769.0 million
Total output .....	\$1,984.5 million

(Including wages)

Source: IMPLAN model of Arizona

## Contributions to state and local tax revenues

In 2017 in Pima County, the UA Tech Park's activities generated an estimated \$40.8 million in tax revenues to local and state governments. Through additional spending outside Pima County, the total tax revenue impact was \$51.5 million. (Exhibit 6)

### Exhibit 6

#### UA Tech Park: State and local tax revenues 2017

(including construction-related)

Generated in:

Pima County ..... \$40.8 million

Arizona (including Pima County) ..... \$51.5 million

Source: IMPLAN model of Pima County and Arizona

## Place of residence of UA Tech Park employees

Less than 10 percent of UA Tech Park employees reside within a 5-mi radius. About 28 percent are within a 5 to 10-mi radius, and approximately the same number (or 27%) resides within a 10 and 15 mi radius. Close to 13 percent reside between a 15 and 20 mi radius, and another 10 percent or every tenth employee resides between 20 and 25 mi radius. Less than 8 percent commute from distances beyond 325 miles. For the remaining 5 percent of employees data was not provided (Exhibit 7).

### Exhibit 7

#### UA Tech Park: Employees by zip code (85xxx)

(based on 2013 survey, average distance)

Less than 5 mi ..... 9.5% (85747)

Between 5 and 10 mi ..... 28.5% (85730, 85706, 85708, 85710, 85 714, 85748, 85711)

Between 10 and 15 mi ..... 27.5% (85715, 85712, 85713, 85716, 85701, 85641, 85749,  
85719, 85746, 85705)

Between 15 and 20 mi ..... 12.8% (85718, 85750, 85757, 85745, 85704)

Between 20 and 25 mi ..... 9.6% (85741, 85737, 85743, 85742)

More than 25 mi ..... 7.3% (85739, 85755, 85735, 85629, 85653, 85614, 85736,  
85658, 85602, 85637, 85731, 85744, 85751, 85756, 80504,  
91320)

Other & N/A ..... 4.9%

Source: Annual tenant survey

## Data and Methodology

This analysis is based on data for calendar year 2017. Data were gathered through the annual tenant survey conducted in spring 2018 in combination with information extracted from the IMPLAN models of Pima County and Arizona. IMPLAN modeling is widely used in academic and applied research of economic impacts associated with industry changes. Originally developed by the University of Minnesota research team, it is now operated and maintained by the MIG, Inc. of Hudson, Wisconsin. Indirect and induced jobs, associated wages and output in Pima County and Arizona were estimated using the input-output methodology incorporated in the IMPLAN models. The IMPLAN county and state models also provided estimates of aggregated state and local tax revenue.

\*Note – “Payroll” and “Wages” are the more commonly used concepts. They correspond to “Labor Income” in the IMPLAN I-O model.

## Economic Impacts of UA Tech Park in Pima County, 1997-2017 (Dollars in millions)

	1997-98	1999	2000-01	2003-04	2007	2008	2009	2010	2013	2015	2017
<b>Number of tenants</b>	17	21	31	31	32	40	40	45	47	38	52
<b>Direct jobs</b>	4,173	5,309	5,949	6,226	6,175	6,938	6,494	5,961	6,226	5,128	5,870
<b>Total jobs operations</b>	8,491	10,866	12,150	12,985	13,027	14,787	11,835	12,662	14,321	8,971	10,411
<b>Total jobs construction</b>	144	1,673	345	320	220	16	33	77	38	52	49
<b>Total job impact</b>	8,635	12,539	12,495	13,305	13,247	14,803	11,868	12,739.0	14,359	9,023	10,460
<b>Wage impact operations</b>	358.9	437.8	595.7	607.6	678.9	900.4	610.1	652.2	845.9	609.5	664.7
<b>Wage impact construction</b>	3.5	40.2	8.3	24.0	9.2	0.7	1.3	3.0	1.7	2.3	2.1
<b>Total wage impact</b>	362.4	478.0	604.0	631.6	688.1	901.1	611.4	655.2	847.6	609.5	666.8
<b>Tax revenues operations</b>	28.7	34.8	48.7	43.1	63.0	77.8	41.0	42.2	51.3	37.5	40.6
<b>Tax revenues construction</b>	0.1	4.0	0.3	0.6	0.9	0.1	0.2	0.3	0.1	0.3	0.2
<b>Total tax rev. impact</b>	28.8	38.8	49.0	43.7	63.9	77.9	41.2	42.5	51.4	37.9	40.8
<b>Dollar impact operations</b>	1,127.3	1,361.8	1,850.4	1,896.9	2,417.6	3,019.5	2,163.9	2,297.7	2,332.0	1,494.9	1,698.5
<b>Dollar impact constr.</b>	7.2	83.5	17.2	27.4	35.9	1.4	5.2	8.1	5.2	7.8	6.1
<b>Total dollar impact</b>	1,134.5	1,445.3	1,867.6	1,924.3	2,453.5	3,020.9	2,169.1	2,305.8	2,337.2	1,502.7	1,704.6

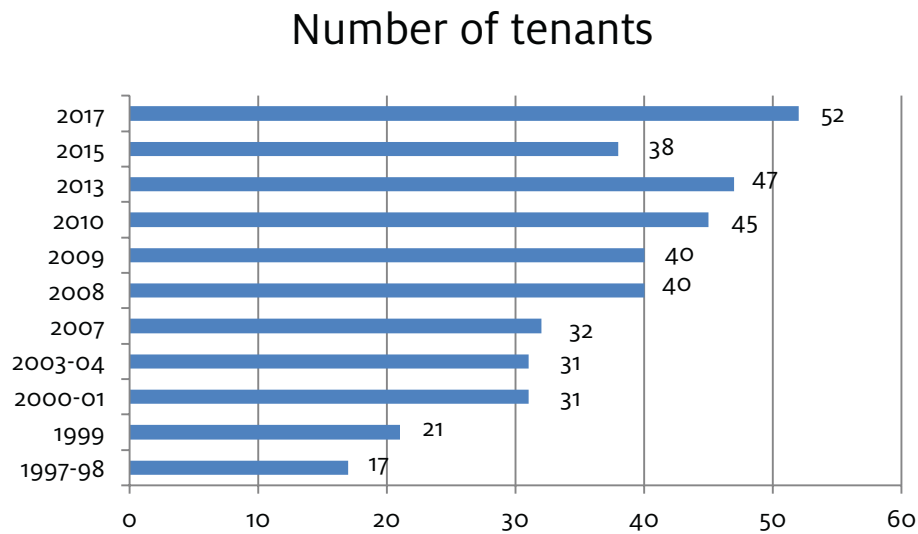
Sources: Economic impact studies (see the Reference list).

## Economic Impact 2017 Compared to Previous Studies (% Change)

	2017 over 1997/8	2017 over 1999	2017 over 2000/1	2017 over 2003/4	2017 over 2007	2017 over 2008	2017 over 2009	2017 over 2010	2017 over 2013	2017 over 2015
	%	%	%	%	%	%	%	%	%	%
<b>Number of tenants</b>	205.9	147.6	67.7	67.7	62.5	30.0	30.0	15.6	10.6	36.8
<b>Direct jobs</b>	40.7	10.6	-1.3	-5.7	-4.9	-15.4	-9.6	-1.5	-5.7	14.5
<b>Total jobs operations</b>	22.6	-4.2	-14.3	-19.8	-20.1	-29.6	-12.0	-17.8	-27.3	16.1
<b>Total jobs construction</b>	-66.0	-97.1	-85.8	-84.7	-77.7	206.3	48.5	-36.4	28.9	-5.8
<b>Total job impact</b>	21.1	-16.6	-16.3	-21.4	-21.0	-29.3	-11.9	-17.9	-27.2	15.9
<b>Wage impact operations</b>	85.2	51.8	11.6	9.4	-2.1	-26.2	8.9	1.9	-21.4	9.1
<b>Wage impact construction</b>	-40.0	-94.8	-74.7	-91.3	-77.2	200.0	61.5	-30.0	23.5	-8.7
<b>Total wage impact</b>	84.0	39.5	10.4	5.6	-3.1	-26.0	9.1	1.8	-21.3	9.4
<b>Tax revenues operations</b>	41.4	16.6	-16.6	-5.8	-35.6	-47.8	-1.0	-3.8	-20.9	8.3
<b>Tax revenues construction</b>	126.8	-94.3	-24.4	-62.2	-74.8	126.8	13.4	-21.8	126.8	-24.4
<b>Total tax revenue impact</b>	41.7	5.2	-16.7	-6.6	-36.2	-47.6	-1.0	-4.0	-20.6	7.7
<b>Dollar impact operations</b>	50.7	24.7	-8.2	-10.5	-29.7	-43.7	-21.5	-26.1	-27.2	13.6
<b>Dollar impact construction</b>	-15.3	-92.7	-64.5	-77.7	-83.0	335.7	17.3	-24.7	17.3	-21.8
<b>Total dollar impact</b>	50.3	17.9	-8.7	-11.4	-30.5	-43.6	-21.4	-26.1	-27.1	13.4

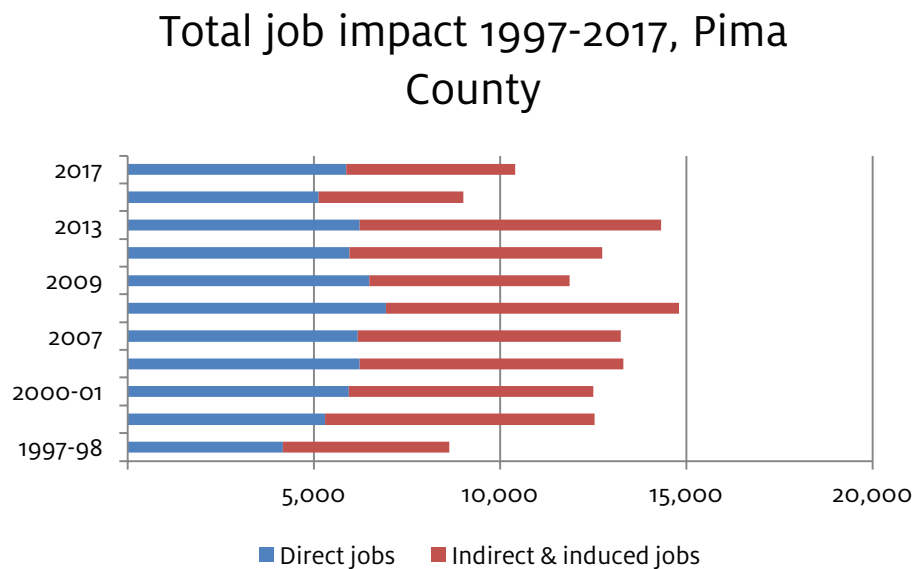


## NUMBER OF TENANTS, 1997-2017, BY SURVEY YEAR



Source: Tenant surveys

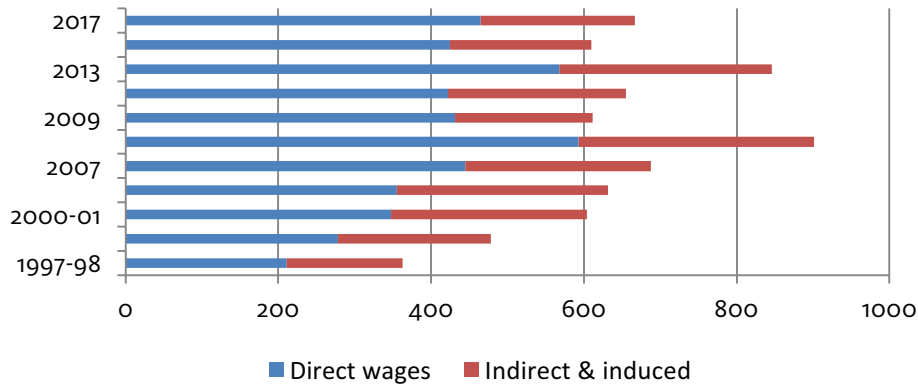
## TOTAL ANNUAL JOB IMPACTS, 1997-2017



Source: Tenant surveys, IMPLAN I-O model of Pima County

## TOTAL ANNUAL WAGE (LABOR INCOME) IMPACTS, 1997-2017

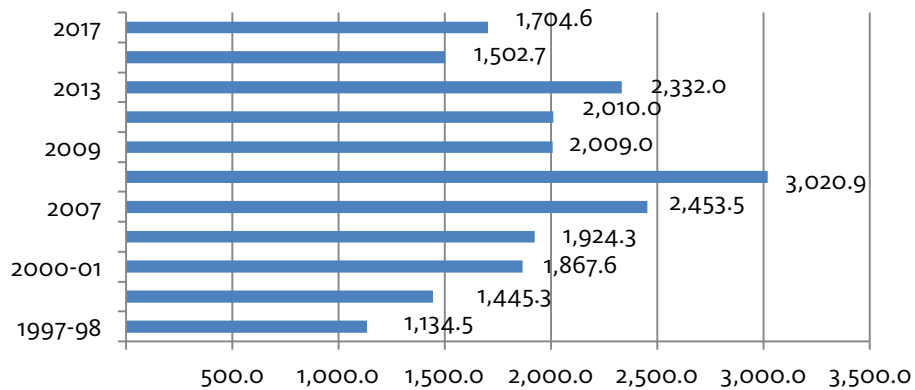
Total wage impact 1997-2017, Pima County  
(\$million)



Source: Tenant surveys, IMPLAN I-O model of Pima County

## TOTAL ANNUAL DOLLAR (OUTPUT) IMPACTS, 1997-2017

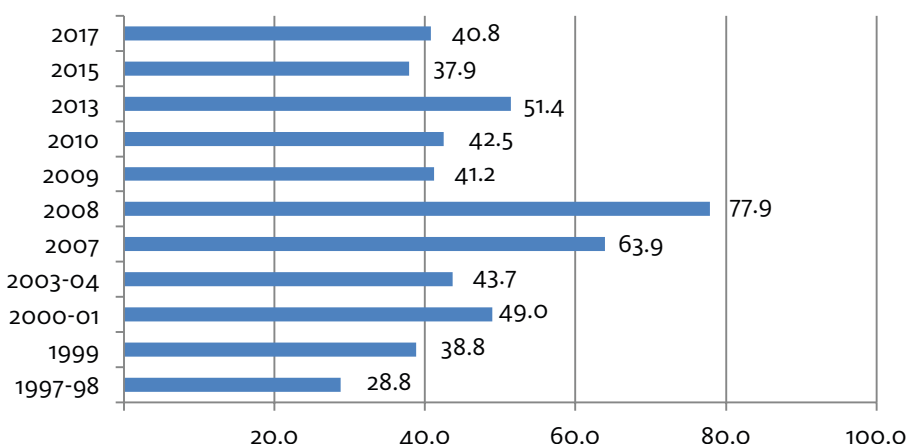
Total dollar impact (\$million)



Source: IMPLAN I-O model of Pima County

## TOTAL ANNUAL TAX REVENUE IMPACTS, 1997-2017

### Total tax revenue impact (\$million)



Source: IMPLAN I-O model of Pima County

## UA TECH PARK: COMPARISON WITH PIMA COUNTY

	Employment 2017	Employment 2015	Change to 2017	% change
<b>Total employment</b>				
<b>Total employment Pima County</b>	497,332	495,782	1,550	0.3
<b>Total employment UA Tech Park</b>	5,870	5,128	742	14.5
<b>Average wages</b>	<b>Wages/ empl 2017</b>	<b>Wages/ empl 2015</b>	<b>Change to 2017</b>	<b>% change</b>
<b>Average wages per employee (\$), Pima County</b>	\$47,327	\$45,576	\$1,751	3.8
<b>Average wages per employee (\$), UA Tech Park</b>	\$74,028	\$82,879	(\$8,851)	-10.7
<b>Selected industry sectors*</b>	<b>Employment 2017</b>	<b>Employment 2015</b>	<b>Change to 2017</b>	<b>% change</b>
<b>Pima County</b>	39,021	41,250	(2,229)	-5.4
<b>UA Tech Park</b>	5,254	4,704	550	11.7

\*Selected industry sectors include: Semiconductor & other device manufacturing; Guided missile & space vehicles; Surgical appliances & supplies manufacturing; Health & personal care – retail; Data processing, hosting, ISP; Computer systems design services; Scientific research & development services; Marketing, research, miscellaneous professional & scientific services; and Business support services.

Source: IMPLAN model of Pima County

## Annual Tenant Survey for Economic and Revenue Impact Study

### Calendar Year 2017

1. Company name:	2. Contact person/phone/email:
3. Principal product/service:	4. NAICS designation:
5. No. of months in operation during 2017 (circle): 1 2 3 4 5 6 7 8 9 10 11 12	6. Highest number of regular employees in 2017:
7. Lowest number of regular employees in 2017	8. Total payroll (\$) of regular employees (Including benefits) In 2017:
9. Number of contract employees in 2017:	10. Total payroll of contract employees In 2017:
11. Number of out-of-town visitors in 2017:	12. Average day per visitor In 2017:
13. Number of University of Arizona Interns:	14. Total revenues(\$) in 2017:
15. No of employees by zip code:	85730 _____ 85746 _____
85614 _____ 85708 _____	85735 _____ 85747 _____
85619 _____ 85709 _____	85736 _____ 85748 _____
85629 _____ 85710 _____	85737 _____ 85749 _____
85641 _____ 85711 _____	85739 _____ 85750 _____
85653 _____ 85712 _____	85741 _____ 85755 _____
85658 _____ 85713 _____	85742 _____ 85757 _____
85719 _____ 85745 _____	85743 _____ 85744 _____
_____	_____
16. Number of employees that are UA Alumni:	

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## About the author



Dr. Vera Pavlakovich-Kochi is the founder and president of VP Research & Consulting LLC (VP standing for “Very Professional”) in Tucson, Arizona. During more than 25 years at the University of Arizona as senior regional scientist and affiliate faculty, Dr. Pavlakovich-Kochi authored and co-authored numerous studies including impact assessment of various agents on local and regional economies, such as universities and science and research parks, Mexican maquiladora sector, fresh produce industry, Mexican visitors to Arizona, and transborder region-building. Articles on Arizona’s economy and U.S.-Mexican border have been published in Arizona’s Economy, Arizona’s Review, Journal of Borderlands Studies, Revista de El Colegio de Sonora, Estudios Sociales, Studies in Regional Science, as book chapters, and Arizona Town Hall reports. Currently, Dr. Pavlakovich-Kochi contributes to a sponsor-supported Eller College project focusing on the assessment of Arizona-Mexico economic relationships, online at <https://azmex.eller.arizona.edu>. She holds B.A. and M.A. degrees from the University of Zagreb, Croatia, and a Ph.D. degree in geography and regional development from Kent State University. Dr. Pavlakovich-Kochi is a Fulbright scholar (Austria 1997).



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*Tech Parks Arizona creates the interactive ground that generates, attracts and retains technology companies and talent in alignment with the research, mission and goals of the University of Arizona. Tech Parks Arizona directs the UA Tech Park, the UA Tech Park at The Bridges and the Arizona Center for Innovation, placing the highest priority on recruiting companies desiring connectivity to the UA.*