

# THE ECONOMIC IMPACT OF ALLERGAN ON THE CALIFORNIA ECONOMY

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**ORANGE COUNTY  
BUSINESS COUNCIL**

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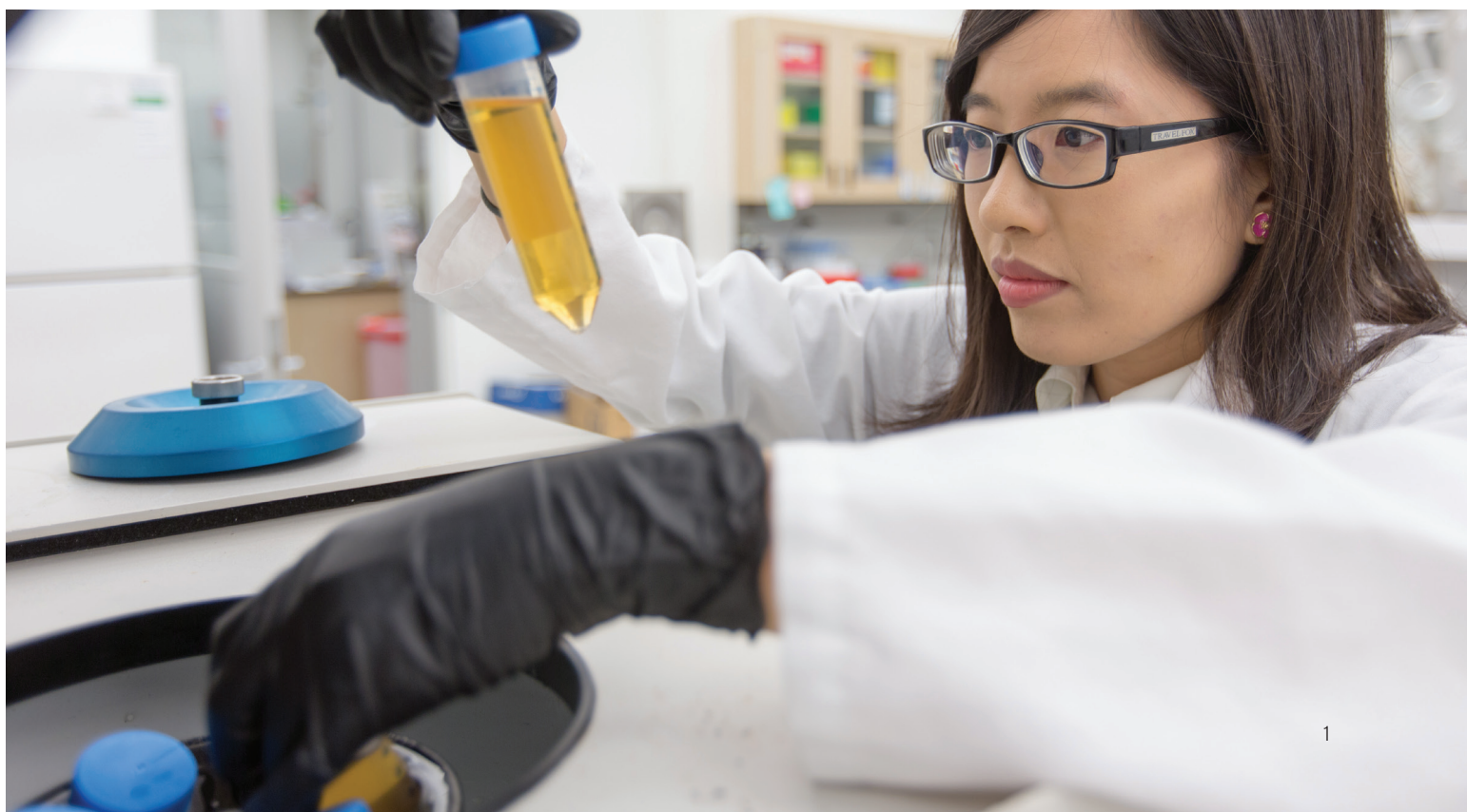


## EXECUTIVE SUMMARY

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A global biopharmaceutical/life sciences company, Allergan is a major economic engine in terms of its significant positive impacts on California by generating economic growth and job creation throughout the state. Allergan has deep historic and continuing roots in California, and OCBC's analysis of the economic impacts of Allergan's 2016 California operations demonstrates that the company has a substantial quantifiable positive effect in the form of direct, indirect, and induced benefits to the state's economic growth and job creation.

- Biopharmaceuticals is a key U.S. industry cluster driving innovation, economic growth, and high-quality job creation, which directly **employs over 850,000 workers**, one third of whom are in key STEM occupations. A key leader in the knowledge/innovation economy, biopharmaceuticals accounts for over 17 percent of all domestic Research & Development (R&D) and ranks second in terms of U.S. patents issued.
- California is a biopharmaceutical industry leader, with over 145,000 workers; it has more direct employment from the industry than any other state. In fact, California has more than twice the biopharmaceutical workforce of the next state, which is New Jersey with 65,783 employees.
- **Allergan's California operations generated an overall total of 16,605 direct, indirect, and induced jobs in the state, producing annual total statewide labor income of approximately \$1.55 billion**, according to IMPLAN economic modeling software. This high level of job creation **provides value-added benefits of \$3.45 billion and increased total output of \$6.35 billion to the state's economy each year**, demonstrating the tremendous benefits to California associated with having an innovative, world-class biopharmaceutical employer.





- Allergan's California economic impact comes in the form of job creation that ripples broadly through a number of key, diverse sectors in the state:

**Manufacturing**  
**Management of Companies and Enterprises**  
**Professional, Scientific, and Technical Services**  
**Healthcare and Social Assistance**

**Administrative Services**  
**Wholesale Trade**  
**Retail Trade**

- **Allergan employs a world-class STEM workforce of 2,233 full-time equivalent (FTE) workers located throughout California.** The majority of those California-based workers are located in Southern California, with Orange County representing over 70 percent of Allergan's California workforce.
- **Allergan's California workforce earns annual compensation, including benefits, of over \$438 million, with average annual compensation for Allergan employees of over \$200,000.** This far exceeds the state's average annual wage of \$55,260, according to the Bureau of Labor Statistics. Allergan's jobs are extremely valuable to the state considering the significantly above-average wages and the very high multiplier effects associated with the biopharmaceutical industry, which benefit the regional, state, and national economy.
- Allergan is a significant contributor to California in terms of state and local taxes. **For 2016, combined taxes paid directly by Allergan in the state are estimated to be over \$108 million.**
- The Allergan Foundation has a long history of providing charitable grants and philanthropy in the state, supporting organizations ranging from educational institutions such as University of California, to non-profits and healthcare providers such as United Way, Mission Hospital Foundation, and Children's Hospital of Orange County (CHOC) Foundation for Children. Between 2011 and 2016, **Allergan provided grants to over 450 California organizations totaling over \$11 million.**

## INTRODUCTION AND STUDY OBJECTIVES

The goal of this research study is to provide an accurate snapshot quantifying the estimated total economic impacts of Allergan's California operations and corporate philanthropy on the statewide economy. OCBC's Allergan briefing report provides an overview of the importance of the national and state biopharmaceutical industry; discusses the basics of economic impact analysis and input-output models to identify the relationships among different sectors in the economy that are used to calculate the statewide multipliers and impacts; and describes the economic impacts that Allergan has on the California economy.

While Allergan has a long history in California, this report focuses its analysis on accurately reflecting Allergan's 2016 California operations. For that reason, this report provides a wide-angle overview and review of Allergan's impact on the statewide economy in terms of current economic growth and job creation. This 2016 report will be used as a baseline for future updated reports analyzing the economic impacts of Allergan's core operations in California.

This report's analysis uses quantitative methods for determining the impact of Allergan operations and incorporates proprietary and confidential data provided by the company to conduct the economic impact analysis. This includes estimates and projections that are reflective of 2016 Allergan operations in California that conservatively extrapolate first half and year-to-date actual data and annualized those respective amounts to project the 2016 full-year estimates of operating expenses, payroll, and taxes.

## ECONOMIC IMPACT ANALYSIS OVERVIEW

An economic impact analysis (EIA) is a standard way to estimate the effect of economic activity on the larger general economy, typically measuring changes in economic activity, job creation, and income in a specific geographic region. The economic event analyzed can include implementation of a new policy or project, or may simply be the presence of a business or organization. Economic activity, especially in high multiplier sectors such as pharmaceuticals, sets a region's economy in motion, as productive sectors buy and sell goods and services from one another, and the EIA estimates the total effect on an economy of changes in the components of final demand for the goods and services produced within that region or state.

The ratio of the total economic effect on a regional economy to the initial activity is known as a regional multiplier. Regional multipliers measure the estimated changes in output, income and employment resulting from an initial round of spending, economic activity, or job creation. The term "regional multiplier" is analogous to the standard Keynesian multipliers used in macroeconomics, meaning, an initial increase in demand leads to an even greater expansion of regional income. As the income received is spent, the effects spur more income generation for others. This provides a way to estimate the economy-wide effects that economic activity has on a particular geographical economy, in this case the state of California.

OCBC used IMPLAN economic analysis software and data to quantify these impacts. IMPLAN was originally developed by the Agricultural Economics Department at the University of Minnesota and is widely used to conduct economic impact analysis. Using classic input-output analysis in combination with regional specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate, adaptable model using statistics specialized by region, not estimated from national averages. Total economic impacts, including total spending, job, and tax impacts, were calculated using the IMPLAN economic impact software package. Within a defined study region, IMPLAN uses average expenditure data from the industries that originate the effect on supplier industries to trace and calculate the multiple rounds of secondary indirect and induced impacts that remain in the state (as opposed to "leakage" outside the state's boundaries). IMPLAN then uses this total to calculate total job and tax impacts.

### REGIONAL INPUT-OUTPUT MODELING SYSTEMS

Economic impact analyses typically employ an input-output model (I/O model) for analyzing the regional economic impact. I/O models are at root mathematical descriptions of how all sectors of an economy are related and rely on inter-industry data to determine how effects in one industry will impact other sectors. Regional I/O models estimate the total effects that an economic activity will have on a local economy, and the associated multipliers are typically used to estimate the economy-wide effects that economic activity has on a regional economy. Each sector has a unique multiplier because each has a different pattern of purchases from firms in and outside the region. Regional I/O modeling systems such as IMPLAN estimate how much an increase in economic activity in a particular region will ripple throughout a regional, state, or national economy.





## ALLERGAN – OVERVIEW AND HISTORY

Allergan is a world-class biopharmaceutical and life sciences organization with deep historical roots in Southern California. As a corporation, Allergan substantially transformed itself in the last few years into a global, multi-specialty pharmaceutical company with an industry leading portfolio of pharmaceuticals in seven therapeutic areas – including eye care, neurosciences, medical dermatology, medical aesthetics, and urologics. By 2016, Allergan has grown, both internally and through acquisitions, to a \$17 billion diversified global pharmaceutical company with a presence across approximately 100 countries, and a robust R&D pipeline of greater than 70 mid-to-late stage projects supported by approximately \$1.5 billion in annual R&D spending.

Characterized by its deep involvement with life sciences technology and R&D and its STEM (science, technology, engineering, and math) workforce, Allergan is one of California's leading life sciences companies and forms the core of Orange County's life sciences industry cluster. The company provides thousands of well-paid employment opportunities to California residents while rolling out innovative products aimed at improving the quality of life for people all over the world. Allergan offers specialty physicians and their patients a wide range of treatments to help preserve and protect sight, reduce physical disability, and otherwise enhance the quality of life.

The roots of Allergan's 60-year commitment to innovation and "bringing the best of medicine to life" can be traced back to its early days in Southern California. Beginning in 1950 in Los Angeles with a handful of employees, moving to Orange County in 1962 before moving to its present California headquarters location in Irvine in 1971, Allergan has transformed into a major corporation with over 16,000 employees worldwide. From its founding until now, Allergan uses insights gained by actively listening to physicians and patients, and consulting with specialists and researchers, to develop innovative products in areas of unmet medical need.

### BIOPHARMACEUTICALS IS A KEY NATIONAL INDUSTRY CLUSTER

The U.S. biopharmaceutical industry is a key driver of innovation, economic growth, and high-quality job creation. The industry:

- Directly employed over 850,000 workers nationally in 2014;
- Accounted for more than \$1.2 trillion in economic output, 3.8 percent of total U.S. output;
- Directly generated \$105 billion in total wages and benefits, averaging \$123,107 per worker, more than twice the U.S. private sector average of \$57,149;
- Had one-third of its workers in key STEM (Science, Technology, Engineering, and Math) occupations; and
- Overall, generated more than \$67 billion in federal, state, and local tax revenues.

Source: TEconomy Partners, The Economic Impact of the Biopharmaceutical Industry: U.S. and State Estimates, Report prepared for PhRMA, May 2016

### THE BIOPHARMACEUTICAL INDUSTRY CLUSTER IS A HUB OF INNOVATION

The biopharmaceuticals industry is a key leader in the U.S. knowledge/innovation economy:

- Domestic R&D of \$56.9 billion accounted for 17.6 percent of all domestic R&D in 2013;
- R&D as a percentage of net sales is 10.7 percent, more than four times the U.S. industry average;
- Devotes 19.1 percent of total domestic employment to R&D, more than 2.5 times the U.S. industry average;
- R&D investments per employee are more than six times the U.S. average; and
- Ranks second to the semiconductor industry in terms of U.S. patents issued.

Source: TEconomy Partners, The Economic Impact of the Biopharmaceutical Industry: U.S. and State Estimates, Report prepared for PhRMA, May 2016

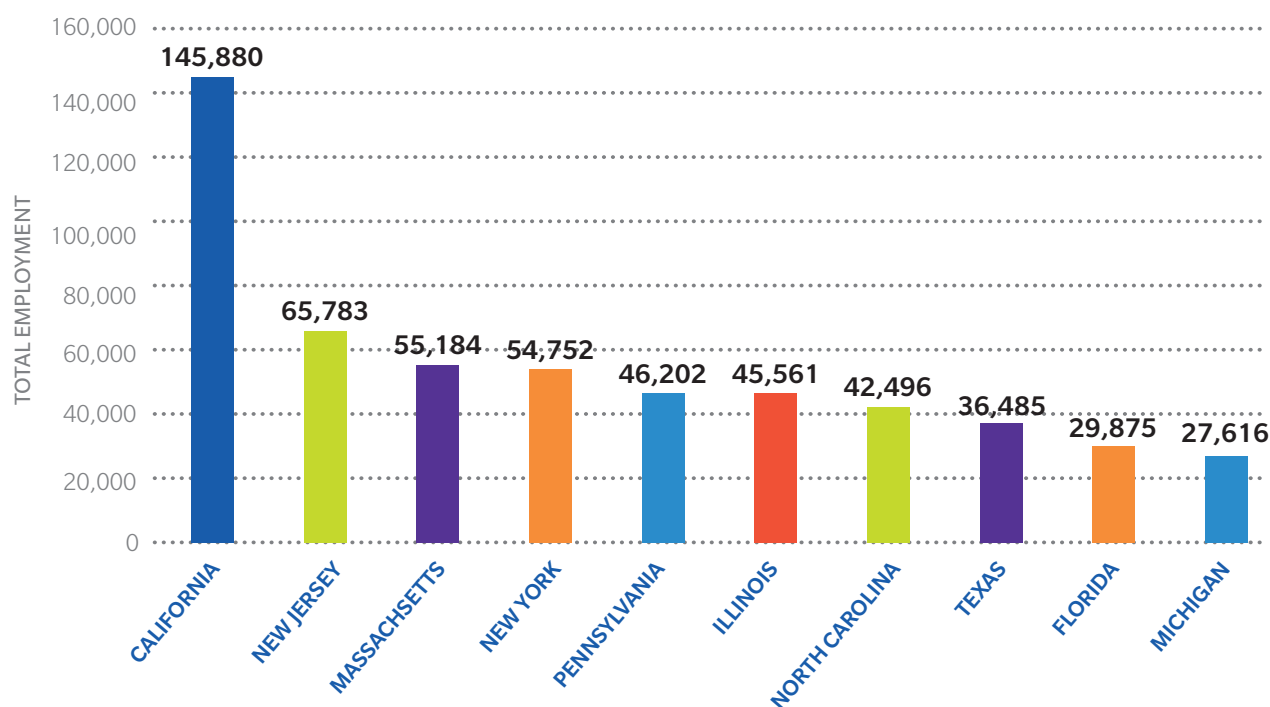
# CALIFORNIA IS A BIOPHARMACEUTICAL LEADER

According to the Pharmaceutical Research and Manufacturers of America (PhRMA), California is by far the largest state in terms of biopharmaceutical employment; in fact, it enjoys more than twice the employment in the sector as the next highest state, New Jersey. In 2014, the California biopharmaceutical sector:

- Generated \$105 billion in economic output and supported another \$138.7 billion for a total of \$243.8 billion;
- Directly employed 145,880 workers; and
- Averaged \$154,080 compensation per employee, compared to \$63,971 per average California job.

Source: TEconomy Partners, The Economic Impact of the Biopharmaceutical Industry: U.S. and State Estimates, Report prepared for PhRMA, May 2016

## TOP 10 STATES FOR BIOPHARMACEUTICAL EMPLOYMENT, 2014



Source: PhRMA – The Economic Impact of the Biopharmaceutical Industry: U.S. and State Estimates May 2016

Boasting an above-average concentration of healthcare and biopharmaceutical organizations, as well as, first-tier educational and research institutions, and a large, talented pool of skilled workers, California provides many advantages and a world-class location for the biopharmaceutical industry cluster to thrive and grow. The life sciences industry – pharmaceuticals, biotech, and medical devices – encompasses one of California’s most significant economic drivers. The dynamism of the life sciences industry cluster has been a central component of a revitalized California economy, and this key industry embodies the state’s key economic development goals of supporting innovative, inclusive, and sustainable growth.

California’s hospitable environment for life sciences companies, coupled with Allergan’s unparalleled innovative products and management strategies, has enabled both Allergan and the state’s biopharmaceutical industry to rapidly innovate, thrive, and grow into the economic powerhouse it is today.

## WHY ARE INDUSTRY CLUSTERS LIKE BIOPHARMACEUTICALS IMPORTANT TO CALIFORNIA

**“With only a fraction of the jobs, the innovation sector generates a disproportionate number of additional local jobs and therefore profoundly shapes the local economy....What is truly remarkable is that this indirect effect on the local economy is much larger than the direct effect.”**

**– Enrico Moretti,  
*The New Geography of Jobs***

Industry clusters are regional concentrations of related companies and industries in a particular geographical location that play a unique role in regional competitiveness, economic growth, and job creation.

At the heart of a regional industry cluster is usually a world-class employer, or core group of companies, that both compete and collaborate. An ecosystem coalesces of interrelated suppliers, service providers such as legal and accounting, capital providers such as venture capital, research organizations, and educational institutions such as the University of California that provide specialized training and education, information, research, and technical support.

Competitive industry clusters that develop innovative, high-value added products and services are central to regional economic development. Specifically, having a world-class pharmaceutical company like Allergan in California pays dividends many times over and provides a myriad of benefits to the rest of the cluster constituents. Clusters typically generate high-wage employment, enhance productivity, and spur innovation by creating a virtuous cycle that brings together a powerful combination of intellectual capital technology, new knowledge and information, large pools of specialized talent, and venture capital and other financial resources.

There is an emerging understanding in recent regional economic development academic literature about the key role that the high-tech, high-pay innovation economy – such as pharmaceuticals firms – plays in economic growth and job creation and the significant benefits it confers on regional economies. For example, University of California, Berkeley economist Enrico Moretti’s 2013 book, “The New Geography of Jobs,” finds that not only do innovative industries bring good-paying jobs to the regions where they cluster, but that the true impact is much greater than direct effects and ripples throughout the economy due to high multiplier effects. Dr. Moretti observes that one of the best ways for a city or state to generate jobs for less-skilled workers is to develop and attract high-tech companies that hire highly skilled workers as well.





# ALLERGAN'S WORLD-CLASS STEM WORKFORCE FOCUSED ON HIGH IMPACT R&D

Allergan employs a world-class STEM workforce in California, with a significant proportion primarily engaged in R&D for new product discovery and development, or support for R&D projects located in the state. Of the approximately 2,233 FTEs in California, over 70 percent are in Orange County, Allergan's base of operations in California. Allergan also operates and employs California workers in:

**Campbell, CA • Goleta, CA • South San Francisco, CA • Westlake Village, CA**

Additionally, Allergan has a significant workforce of over 450 field workers located throughout the state.

Allergan's California-based workforce earns approximately \$438 million in total compensation, enjoying average annual compensation of over \$200,000 per employee (fully loaded cost including compensation and benefits) – many times exceeding the state's average annual wage of \$55,260, according to the Bureau of Labor Statistics. Allergan's payroll is extremely valuable to California considering not only the significantly above-average wages provided to workers, but also due to the very high multiplier effects associated with the pharmaceutical industry.

## TOTAL ECONOMIC IMPACT OF ALLERGAN ON THE CALIFORNIA ECONOMY

Allergan's total economic impact on California includes the effect of the following on economic activity and job creation in 2016:

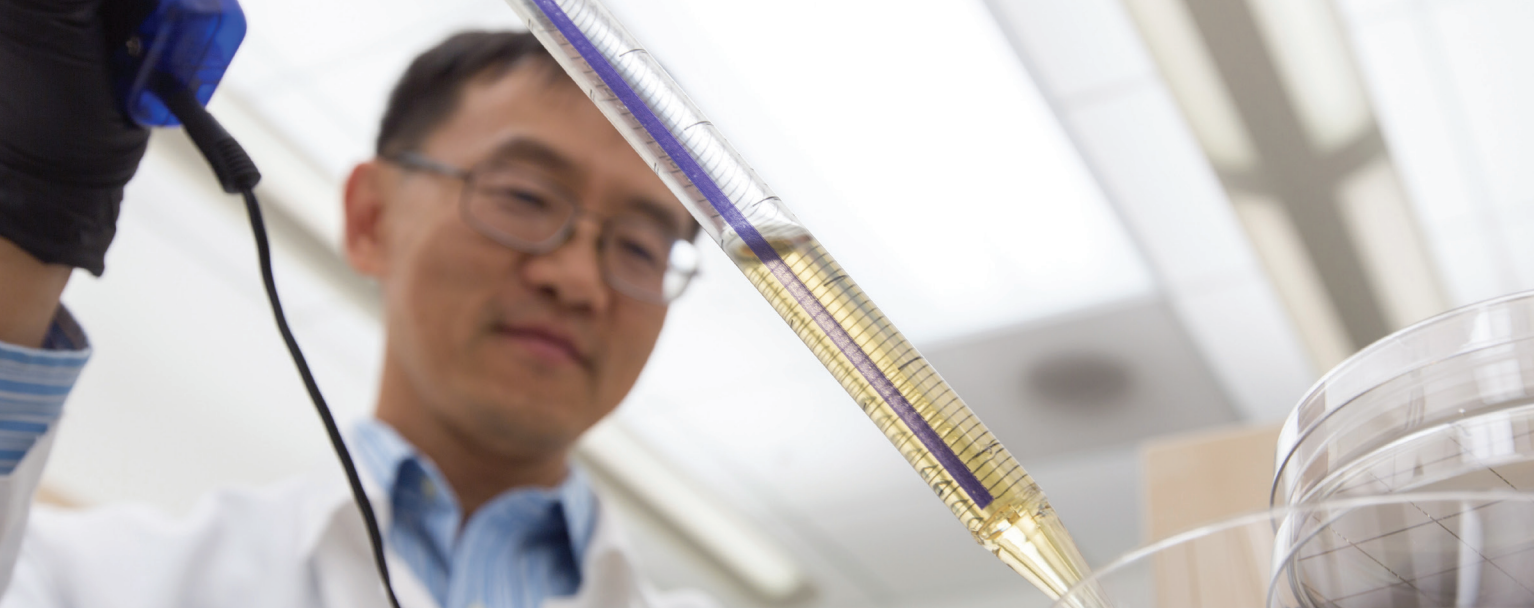
- Estimated Allergan California payroll, including fully burdened employees and a small number of contingent workers;
- Estimated Allergan California operating expenses, including rent, utilities, etc.;
- Estimated Allergan California capital expenditures, primarily on machinery, R&D equipment, and test lab equipment;
- Estimated Allergan outsourced clinical research expenses paid to California vendors for clinical research support; and
- Allergan Foundation Philanthropic/Charitable Giving

Overall, taking into account Allergan's employment, employee compensation, capital spending, and charitable giving in California, Allergan's estimated total direct, indirect, and induced impacts will generate 16,605 jobs providing a California labor income of \$1.55 billion. Additionally, the value-added impacts associated with Allergan California operations in 2016 will reach \$3.45 billion, while overall output is estimated to be \$6.35 billion.

**ALLERGAN'S 2016  
TOTAL ECONOMIC IMPACT ON CALIFORNIA**

IMPACT TYPE	EMPLOYMENT	LABOR INCOME	VALUE ADDED	OUTPUT
Indirect Effect	7,574	\$719,515,325	\$1,067,886,266	\$1,839,005,004
Induced Effect	6,584	\$356,985,444	\$632,518,856	\$1,063,619,664
Total Effect	16,605	\$1,548,101,985	\$3,446,490,536	\$6,350,851,971

Additionally, Allergan's economic impact benefits are not just confined to the biopharmaceutical sector, but ripple substantially throughout the state, not just geographically, but broadly by creating good-paying jobs in many industry sectors that are important drivers of the California economy.



### DISTRIBUTION OF ALLERGAN EMPLOYMENT IMPACTS: TOP 12 INDUSTRY SECTORS

NAICS	INDUSTRY	EMPLOYMENT
31-33	Manufacturing	2,900
55	Management of Companies and Enterprises	2,064
54	Professional, Scientific, and Technical Services	1,705
62	Healthcare and Social Assistance	1,302
56	Administrative Services	1,227
42	Wholesale Trade	1,223
44-45	Retail Trade	1,030
72	Accommodation and Food Service	993
81	Other Services	818
52	Finance and Insurance	682
48-49	Transportation and Warehousing	653
53	Real Estate Rental and Leasing	633

Source: IMPLAN and OCBC analysis

## TYPES OF ECONOMIC IMPACTS

Economic impact analyses estimate multiple types of impacts:

- **Output** is the total increase in business sales revenue in the state. In turn, local businesses use some of this new revenue to pay for goods and services outside of the study region, which is known as “leakage,” or the impacts of spending that occurs outside the geographical region being studied – in this case the state of California.
- **Value added** estimates the increase in the study region’s gross regional product, in this case the increase in California’s gross state product (GSP). This impact estimates the differences between an industry or a company’s total output and the cost of its intermediate inputs and are somewhat akin to contributions to gross domestic product (GDP).
- **Labor income** represents the increase in total money paid to local employees throughout the state in the form of salaries and wages. The increases in income may come in the form of raises and/or increased hours for existing employees, or new jobs for the unemployed.
- **Employment** measures the increase in the number of total employees in the state due to Allergan’s California operations.

## DESCRIPTIONS OF DIRECT, INDIRECT, AND INDUCED

In addition to the types of impacts, economic impact analyses estimate the sources of the impacts. Each impact can be decomposed into different components: **Direct effects** are the result of the money initially spent in the study region by the business or organization being studied. This includes money spent to pay for salaries, supplies, raw materials, and operating expenses.

In addition to the employment and payroll generated directly by Allergan's business operations, the company will also create indirect and induced jobs. In other words, the direct effects from the initial spending on operations and payroll also create additional activity in the local economy in two ways, known as:

### Indirect effects • Induced effects

**Indirect effects** are the results of business-to-business transactions indirectly caused by the direct effects. Benefits from the direct effects will subsequently increase spending at other local businesses, resulting from company purchases of goods and services from other local industries, and the local purchases of these industries in turn. The indirect effect can therefore be characterized as a measure of Allergan's impact on the increase in business-to-business activity.

**Induced effects** are the results of increased personal income caused by the direct and **indirect effects**, in other words impacts produced by the consumer spending of Allergan employees. Induced impacts result from successive rounds of spending in the economy from the direct and indirect impacts through increased household income that are multiplied throughout the region. Businesses experiencing increased revenue from the direct and indirect effects will subsequently increase payroll expenditures (by hiring more employees, increasing payroll hours, raising salaries, etc.). Households will, in turn, increase spending at local businesses. The induced effect is best characterized as a measure of increased household-to-business activity in the state due to Allergan's California operations.

## ALLERGAN'S TAX CONTRIBUTIONS TO CALIFORNIA

However, Allergan also contributes significantly to the state and nation in terms of tax contributions. Based upon 2016 California operations, Allergan will directly pay over \$108 million in aggregated California local and state taxes based upon the combination of employment tax, sales tax, property tax, state corporate income tax, and California income tax withholding.

This analysis does not include an estimate of every tax that Allergan's California operations will generate in the state. Along with the direct taxes paid by the company, there will also be taxes generated by employees and other businesses based on personal spending, locally supported business activities, and other taxes generated by the indirect and induced economic activity generated by Allergan's California activities reported earlier in this report. Those additional tax revenues are not included in this analysis but are over and above what is reported in the table below.

Additionally, it is estimated that Allergan will pay approximately \$100 million in state corporate income taxes to other states in which Allergan operates. The table below provides a breakout of 2016 estimated California tax contributions to be paid directly by Allergan.

ALLERGAN'S TAX CONTRIBUTIONS IN CALIFORNIA, ESTIMATED 2016	
Employment Tax	\$5,358,506
Sales Tax	\$1,052,355
Property Tax	\$5,724,000
State Corporate Income Taxes	\$50,000,000
Income Tax Withholding	\$46,185,696
<b>Total CA Taxes Paid</b>	<b>\$108,320,557</b>



# THE ALLERGAN FOUNDATION: CHARITABLE GIVING AND PHILANTHROPY

On top of providing above average wages for California workers and generating substantial economic impacts that ripple positively throughout the state, Allergan also has a long history of providing grants to California organizations through The Allergan Foundation.

The Allergan Foundation is an Irvine, California based, private charitable foundation committed to a mission of providing a lasting and positive impact in the communities in which Allergan employees live and work. Established in 1998, The Allergan Foundation focuses its resources primarily on health and human services, women's health that supports patient diagnosis and treatment, increased access to quality healthcare, and philanthropic support to organizations working hard to make the lives of individuals healthier and happier and to make their communities better places to live, now and in the future.

Allergan also recognizes the importance of independent medical education programs that enhance the level of patient care in the U.S. As such, Allergan funds educational activities through its extensive unrestricted educational grant program to foster increased understanding of scientific, clinical, or healthcare issues. In addition, The Allergan Foundation conducts grantmaking in support of civic and community programs, education and the arts.

Since inception, The Allergan Foundation has distributed over \$66 million dollars to a wide variety of charitable initiatives. In the last five years, Allergan provided over 450 California organizations with a total of over \$11 million in grants, supporting organizations ranging from educational institutions, such as UC Irvine and Chapman University, to non-profits and healthcare providers, such as United Way, Susan G. Komen for the Cure, Mission Hospital Foundation, and Children's Hospital of Orange County (CHOC) Foundation for Children.

## UC IRVINE, ALLERGAN, AND THE ALLERGAN FOUNDATION

With the University of California, Irvine being one of the top educational institutions in the state and well-known for its extremely successful life science and medical programs, the university's ties to Allergan date back to the 1970s when Allergan provided its first gift to the university.

Overall, between 1970 and 2009, Allergan provided UC Irvine with a total of \$4,352,911 in gifts primarily to medical sectors and to several other programs, including the Paul Merage School of Business. Alongside gifts provided by Allergan, The Allergan Foundation provided its first gift to UC Irvine in the form of \$10,000 to the Science Education Programs. Overall between 1998 and 2016, the Allergan Foundation gifted a total of \$5,552,525 to UC Irvine, with the most recent gift in 2016 totaling \$151,000, which was awarded to Department and Fellowship Support that provides distributions to the School of Biological Sciences, The Paul Merage School of Business, and the School of Physical Sciences. Combined, Allergan and The Allergan Foundation have gifted UC Irvine a total of \$9,905,436 since 1970, helping to support a number of events and programs which have greatly contributed to the university's success in becoming an internationally-recognized, top-tier educational institution.

### THE ALLERGAN FOUNDATION GRANT GIVING HISTORY, 2011-2016

2011	\$ 2,085,862	:	2013	\$ 1,926,062	:	2015	\$ 1,777,080
2012	\$ 1,935,659	:	2014	\$ 1,824,290	:	2016	\$ 1,495,856
				<b>TOTAL</b>	<b>\$ 11,044,809</b>		

