

# THE ANNUAL ECONOMIC IMPACT OF AURORA UNIVERSITY



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# AURORA UNIVERSITY ECONOMIC IMPACT

## EXECUTIVE SUMMARY

This report examines the economic impact of Aurora University on five regions: Chicagoland, Kane County, the City of Aurora, Walworth County, and the City of Williams Bay, Wisconsin. The purpose of this report is to detail the ways in which Aurora University contributes both directly and indirectly to these local economies.

### Overview

In the 2012-2103 fiscal year, Aurora University contributed the following amounts to the five regions.

- Chicagoland                      \$340.2 Million
- Kane County                      \$115.3 Million
- Aurora                              \$51.7 Million
- Walworth County                \$9.1 Million
- Williams Bay                      \$2.9 Million

### Impact on Jobs

The University provided 1,320 jobs in Chicagoland: 365 positions at Aurora and 955 new jobs

### Impact of the John C. Dunham STEM Partnership School

During the 2014-2015 academic year the Dunham STEM Partnership School will contribute \$6.4 Million to the Aurora area including:

- \$3 million in increased net economic activity
- \$1 million in increased grant funding
- \$3.4 million in increased lifetime earnings of Dunham students

### Conclusion

Aurora University provides numerous advantages for the five regions, from offering a place of education for their residents whose lifestyles and earning capacities are measurably enhanced by its programs, to producing economic opportunities for local government and businesses. Due to the outside students and visitors the University attracts, the University brings in money from outside the regions. These economic advantages, coupled with the additional cultural benefits the University offers, attest to the significant contribution of Aurora University to Chicagoland, Kane County, Aurora, Walworth County, and Williams Bay.

## METHODS USED IN THE STUDY

**Impact on Local Economies** –The analysis of the Spending Impact of Aurora University was conducted in the tradition of the method developed for the American Council on Education (ACE) by Caffrey and Isaacs (1971) to determine the impact of higher education. The ACE method is still the primary method employed in economic impact studies (Siegfried, Sanderson, & McHenry, 2007). Methods used in the analysis of the Spending Impact are described below:

**Five Regions** – The Aurora University Economic Impact on the five regions was determined. The regions are listed below with descriptions of the territory included in each one.

**Chicagoland** – Illinois – Cook, DeKalb, DuPage, Grundy, Lake, Kane, Kendall, McHenry, and Will Counties. Indiana – Jasper, Lake, Newton, and Porter Counties. Wisconsin - Kenosha County  
**Kane County** – Kane County, Illinois  
**Aurora** – City of Aurora, Illinois  
**Walworth** – Walworth County, Wisconsin  
**Williams Bay** – City of Williams Bay, Wisconsin

**Spending Impact** - The Aurora Spending Impact is the result of direct and secondary spending. Direct spending comes from the University, its employees, students, and visitors. Secondary spending is by businesses and governments, the beneficiaries of the initial direct spending.

**Direct and Secondary Spending Impacts** - The Direct Spending Impact is the initial impact on the local economy due to spending by the University, its employees, and students. The Secondary Spending Impact comes from spending by businesses and governments from the funds that they received from Aurora, its employees, students, and visitors. The Aurora Spending Impact is the sum of the direct and secondary spending.

**Total Spending Impact** - The Total Spending Impact = Direct Spending Impact + Secondary Spending Impact.

**Multiplier** - The ratio of Total Spending Impact to Direct Spending Impact (Multiplier = Total Spending Impact/Direct Spending Impact). An institution's Total Spending Impact is derived from some multiple of its direct expenditures. For example to determine Aurora's Total Spending Impact on Chicagoland a multiplier of 2.58 was used. This multiplier was calculated specifically for the higher education industry in Chicagoland by the U.S. Department of Commerce Regional Input-Output Modeling System (RIMS II). A multiplier of 2.58 means that for every \$1.00 of direct spending an additional \$1.58 is generated in secondary spending.

The multipliers used in this analysis are within the range of typical multipliers used for regions of their size. These multipliers are listed below.

- Chicagoland 2.58
- Kane County 1.63
- Aurora 1.35
- Walworth County 1.25
- Williams Bay 1.05

**Exporting and Import Substitution** - The Economic Impact of an organization on a region is derived from its ability to attract outside money to a region and to prevent inside money from leaving it. Attracting outside people to purchase a Chicagoland education is *exporting*. Attracting Chicagoland people to choose an Aurora education instead of attending a downstate university is *import substitution*.

Most Aurora students are from Chicagoland. Students from Peoria and others from outside Chicagoland are counted in the *export* category. They bring “outside” money into Chicagoland. The Peoria family, for example, earned its income outside the region and injects it into the Chicagoland economy when they purchase an Aurora education.

Some Chicagoland students are commuters and others live in University residence halls. The Chicagoland dormitory student is making a stronger commitment to stay in Chicagoland than is a commuter. She lives away from home but has decided to remain within Chicagoland. She is keeping “inside” money in Chicagoland. Aurora University has enabled Chicagoland to retain her tuition revenue rather than lose it to Peoria, or Urbana-Champaign. Therefore, Chicagoland residence hall students are counted in the *import substitution* category, whereas Chicagoland commuters are not.

The share of tuition revenue that results from *exporting* and *import substitution* for each of the five geographic regions in 2012-2103 is listed below:

- Chicagoland 28.9%
- Kane County 69.5%
- Aurora 79.5%
- Walworth County 77.3%
- Williams Bay 98.7%

These percentages were multiplied by University vendor spending and payroll in each of the five regions to determine the Aurora Direct Spending Impact for the region.

**Student Personal Spending** - Student living expenses for food, entertainment, transportation, clothing and other items, which are above payments to Aurora for tuition, residence halls, and meal plans are counted as Student Personal Spending. Only personal spending by AU students originating from outside each of the five geographic regions was used when determining the Aurora Economic Impact on that region.

**Alumni Earnings** – The principal economic value of a University degree lies in the difference between the average earnings of a University graduate and the average earnings of a high school graduate. This was calculated in the following manner: the number of alumni by gender, graduation year, and degree was multiplied by the average annual earnings for each category. The average annual income for high school graduates for each category was then subtracted. This process resulted in the additional earnings gained from a University education.

**Aurora University Alumni Impact** – Fifty percent of the increased earnings of Aurora University alumni in the five regions were included in this report. This assigned some of the responsibility for alumni earnings to the University and left some of the responsibility to other factors; for example, these individuals could have received their degree from any of a number of other institutions and this could have contributed to their earning potential.

**Social Benefit Impacts** – This is the benefit of reduced alcoholism, incarceration, unemployment, and welfare because of the choices made by Aurora University alumni living in the five regions. Lower social costs reduce expenditures of businesses and governments.

**New Jobs** – Included are 1) employment at Aurora University and 2) new jobs at other firms and government agencies generated by the purchases of the University, its employees, students, and visitors.

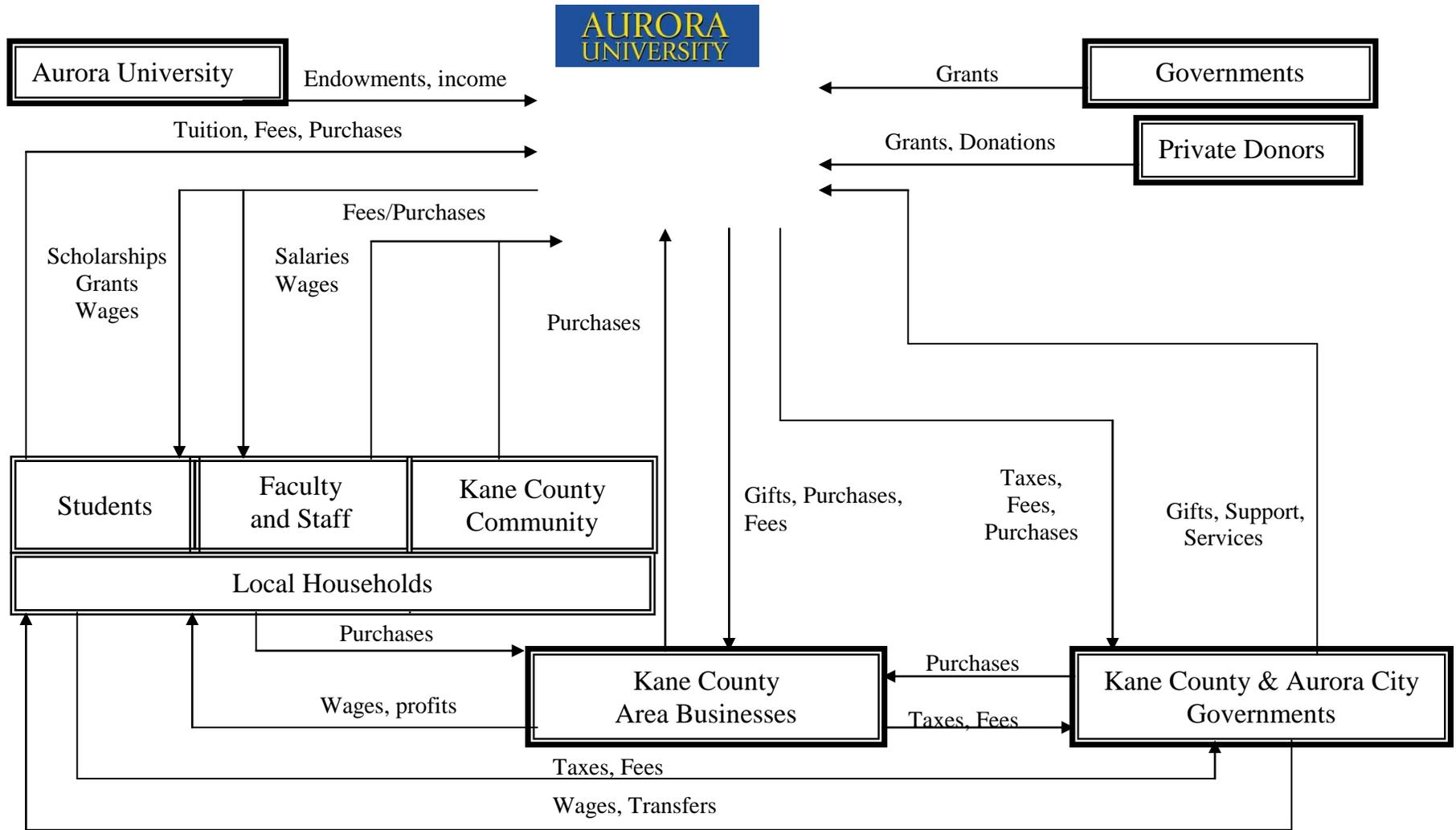
## **CASH FLOW MODEL**

The flow chart on page 7 represents Aurora University's place in the flow of income and expenditures in the local economy. "The circular flow of income, where households earn income and spend, businesses receive revenues from household spending and pay their operating costs, and local governments receive taxes and fees which are transformed into municipal services, is illustrated by the chart. The income-spending /income-re-spending cycle constitutes the multiplier process to which reference is made above." (Rennie, 2002)

# Exhibit 1

## Economic Impact of Aurora University on Local Economy

### Cash Flow Model (Rennie, 2002)



**Exhibit 2**  
**THE ECONOMIC IMPACT OF AURORA UNIVERSITY**  
**SUMMARY OF AU IMPACT BY REGION**

TYPE OF ECONOMIC IMPACT	CHICAGOLAND	KANE COUNTY	CITY OF AURORA	WALWORTH COUNTY	CITY OF WILLIAMS BAY
<b>Direct Spending</b>	\$17,103,573	\$17,532,301	\$12,011,841	\$3,906,360	\$2,530,892
<b>Secondary Spending</b>	\$27,023,645	\$11,047,103	\$4,204,144	\$976,590	\$126,545
<b>Alumni Increased Earnings</b>	\$187,028,639	\$54,560,653	\$20,831,950	\$3,400,836	\$185,290
<b>Social Benefit Impact</b>	\$109,024,420	\$32,127,398	\$14,681,192	\$1,138,292	\$69,190
<b>Total Impact</b>	\$340,180,277	\$115,267,454	\$51,729,127	\$9,073,048	\$2,911,917

### Exhibit 3

## AURORA UNIVERSITY IMPACT ON CHICAGOLAND

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN CHICAGOLAND</b>	
University Spending	\$4,144,052
Employee Spending	\$9,540,278
Student Spending	\$2,342,750
Visitor Spending	\$1,076,492
	\$17,103,573
<b>SECONDARY SPENDING IN CHICAGOLAND</b>	
Secondary Spending by Aurora University	\$6,547,602
Secondary Spending by Faculty, Students and Visitors	\$20,476,043
	\$27,023,645
<b>Total Aurora University Direct and Secondary Impact</b>	<b>\$44,127,218</b>
<b>EARNINGS IMPACT IN CHICAGOLAND</b>	
Current Increased Earnings of Alumni	\$187,028,639
<b>Total Aurora University Earnings Impact</b>	<b>\$187,028,639</b>
<b>SOCIAL BENEFIT IMPACT IN CHICAGOLAND</b>	
Reduced Absenteeism	\$12,956,320
Reduced Alcoholism	\$3,797,403
Reduced Crime Victim Cost	\$5,413,280
Reduced Incarceration	\$16,195,750
Reduced Smoking	\$6,510,377
Reduced Unemployment	\$38,508,120
Reduced Welfare Expenditures	\$25,643,170
<b>Total Aurora University Social Benefit Impact</b>	<b>\$109,024,420</b>
<b>Total Chicagoland Economic Impact</b>	<b>\$340,180,277</b>

## Exhibit 4

# AURORA UNIVERSITY IMPACT ON KANE COUNTY

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN KANE COUNTY</b>	
University Spending	\$2,721,186
Employee Spending	\$10,683,116
Student Spending	\$2,526,950
Visitor Spending	\$1,601,049
	\$17,532,301
<b>SECONDARY SPENDING IN KANE COUNTY</b>	
Secondary Spending by Aurora University	\$1,714,619
Secondary Spending by Faculty, Students and Visitors	\$9,332,484
	\$11,047,103
<b>Total Aurora University Direct and Secondary Impact</b>	<b>\$28,579,404</b>
<b>EARNINGS IMPACT IN KANE COUNTY</b>	
Current Increased Earnings of Alumni	\$54,560,653
<b>Total Aurora University Earnings Impact</b>	<b>\$54,560,653</b>
<b>SOCIAL BENEFIT IMPACT IN KANE COUNTY</b>	
Reduced Absenteeism	\$3,807,000
Reduced Alcoholism	\$1,138,089
Reduced Crime Victim Cost	\$1,579,360
Reduced Incarceration	\$4,735,390
Reduced Smoking	\$1,735,230
Reduced Unemployment	\$11,395,360
Reduced Welfare Expenditures	\$7,736,968
<b>Total Aurora University Social Benefit Impact</b>	<b>\$32,127,398</b>
<b>Total Kane County Economic Impact</b>	<b>\$115,267,454</b>

## Exhibit 5

# AURORA UNIVERSITY IMPACT ON THE CITY OF AURORA

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN AURORA</b>	
University Spending	\$2,018,024
Employee Spending	\$5,825,540
Student Spending	\$1,967,240
Visitor Spending	\$2,201,036
	<b>\$12,011,841</b>
<b>SECONDARY SPENDING IN AURORA</b>	
Secondary Spending by Aurora University	\$706,309
Secondary Spending by Faculty, Students and Visitors	\$3,497,836
	<b>\$4,204,144</b>
<b>Total Aurora University Direct and Secondary Impact</b>	<b>\$16,215,985</b>
<b>EARNINGS IMPACT IN AURORA</b>	
Current Increased Earnings of Alumni	\$20,831,950
<b>Total Aurora University Earnings Impact</b>	<b>\$20,831,950</b>
<b>SOCIAL BENEFIT IMPACT IN AURORA</b>	
Reduced Absenteeism	\$1,683,520
Reduced Alcoholism	\$538,914
Reduced Crime Victim Cost	\$686,080
Reduced Incarceration	\$2,071,260
Reduced Smoking	\$816,556
Reduced Unemployment	\$5,187,320
Reduced Welfare Expenditures	\$3,697,542
<b>Total Aurora University Social Benefit Impact</b>	<b>\$14,681,192</b>
<b>Total Aurora University Economic Impact</b>	<b>\$51,729,127</b>

## Exhibit 6

# AURORA UNIVERSITY IMPACT ON WALWORTH COUNTY

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN WALWORTH COUNTY</b>	
University Spending	\$280,707
Employee Spending	\$1,599,173
Student Spending	\$78,260
Visitor Spending	\$1,948,220
	<b>\$3,906,360</b>
<b>SECONDARY SPENDING IN WALWORTH COUNTY</b>	
Secondary Spending by Aurora University	\$70,177
Secondary Spending by Faculty, Students and Visitors	\$906,413
	\$976,590
<b>Total Aurora University Direct and Secondary Impact</b>	<b>\$4,882,950</b>
<b>EARNINGS IMPACT IN WALWORTH COUNTY</b>	
Current Increased Earnings of Alumni	\$3,400,836
<b>Total Aurora University Earnings Impact</b>	<b>\$3,400,836</b>
<b>SOCIAL BENEFIT IMPACT IN WALWORTH COUNTY</b>	
Reduced Absenteeism	\$160,520
Reduced Alcoholism	\$32,063
Reduced Crime Victim Cost	\$72,320
Reduced Incarceration	\$210,560
Reduced Smoking	\$46,295
Reduced Unemployment	\$415,440
Reduced Welfare Expenditures	\$201,094
<b>Total Aurora University Social Benefit Impact</b>	<b>\$1,138,292</b>
<b>Total Walworth County Economic Impact</b>	<b>\$9,422,078</b>

**Exhibit 7**  
**AURORA UNIVERSITY IMPACT**  
**ON WILLIAMS BAY**

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN WILLIAMS BAY</b>	
University Spending	\$132,286
Employee Spending	\$282,065
Student Spending	\$83,921
Visitor Spending	\$2,032,620
	<b>\$2,530,892</b>
<b>SECONDARY SPENDING IN WILLIAMS BAY</b>	
Secondary Spending by Aurora University	\$6,614
Secondary Spending by Faculty, Students and Visitors	\$119,930
	<b>\$126,545</b>
<b>Total Aurora University Direct and Secondary Impact</b>	<b>\$2,657,437</b>
<b>EARNINGS IMPACT IN WILLIAMS BAY</b>	
Current Increased Earnings of Alumni	\$185,290
<b>Total Aurora University Earnings Impact</b>	<b>\$185,290</b>
<b>SOCIAL BENEFIT IMPACT IN WILLIAMS BAY</b>	
Reduced Absenteeism	\$9,840
Reduced Alcoholism	\$1,930
Reduced Crime Victim Cost	\$4,320
Reduced Incarceration	\$12,530
Reduced Smoking	\$2,812
Reduced Unemployment	\$24,680
Reduced Welfare Expenditures	\$13,078
<b>Total Aurora University Social Benefit Impact</b>	<b>\$69,190</b>
<b>Total Williams Bay Economic Impact</b>	<b>\$2,911,917</b>

## **THE AURORA UNIVERSITY ECONOMIC IMPACT ON CHICAGOLAND**

This report seeks to determine the importance of Aurora University to Chicagoland. It represents a careful examination of the evidence available from detailed research conducted according to the best practices in the industry.

In 2012-2103 the University contributed \$340.2 million in additional spending to Chicagoland including:

- \$ 17.1 million in direct spending
- \$ 27.0 million in secondary business spending
- \$187.0 million in increased alumni earnings
- \$109.0 million in social benefits

The University supported employment opportunities for 1,320 people in Chicagoland:

- 365 Full Time Jobs at Aurora University
- 955 other New Jobs in Chicagoland

These statistics were determined by tracing the dollars spent, the people employed, the assets added, the taxes affected, and the sales generated in Chicagoland.

### **THE AURORA UNIVERSITY DIRECT SPENDING IMPACT**

The Direct Spending Impact is based on the amount of “outside money” brought to Chicagoland and “inside money” that is retained in Chicagoland by Aurora University. “Outside money” is tuition revenue, grants, and contributions originating outside Chicagoland. “Inside money” which is retained is from Chicagoland residence hall students who choose to attend Aurora rather than Bradley, University of Illinois or another outside university.

The share of tuition revenue that came from exporting and import substitution in 2012-2103 was 28.9%. This percentage was multiplied by University vendor spending and payroll in Chicagoland to determine the Aurora Direct Spending Impact for the region.

Aurora University, its employees, students spent about \$55.4 million in Chicagoland during the 2012-2103 fiscal year. Of that amount, about \$16 million can be attributed to exporting and import substitution. When the \$1.1 million of out-of area visitor spending is added the Aurora Direct Spending during 2012-2103 totals about \$17.1 million.

The Aurora University Direct Impact on Chicagoland in 2012-2103 was approximately \$17.1 million. This was money derived from outside Chicagoland that was spent by the University and its employees, students, and visitors. This money was spent and re-spent several times in the community. Some of it was paid to local merchants or was received as income by local residents. The amount of the turnover was \$27 million in 2012-2103.

This is also known as the multiplier effect: That is how an infusion of revenue then echoes through an economy to stimulate additional revenue.

Of the \$17.1 million spent in the region by the University community, the University contributed 24% of this flow, or \$4.1 million. AU faculty and staff spent 56% of that amount, or \$9.5 million, with Chicagoland businesses. The University's students who came from outside Chicagoland accounted for \$2.3 million, or 14%, of the total spending on food, clothing, and other goods. Visitors to the campus and University events represented \$1.1 million or 6%. Exhibit 8 displays these numbers.

### **Exhibit 8**

<b>DIRECT SPENDING BY AURORA UNIVERSITY IN CHICAGOLAND</b>	
University Spending	\$4,144,052
Faculty & Staff Spending	\$9,540,278
Student Spending	\$2,342,750
Visitor Spending	\$1,076,492
<b>Total Direct Spending</b>	<b>\$17,103,573</b>

### **DIRECT UNIVERSITY SPENDING**

Aurora University spent \$14.3 million on goods and services in Chicagoland during the 2012-2103 fiscal year. Of that amount, \$4.1 million can be attributed to exporting and import substitution. Not included in this total are salaries to employees, loans and grants to students, and purchases of goods and services from organizations outside of Chicagoland.

### **EMPLOYEE SPENDING**

In 2012-2103 the payroll for Chicagoland people employed at Aurora University was \$33 million. This includes the value of salaries and all benefits. Of this income, \$9.5 million was earned from exporting and import substitution.

### **STUDENT SPENDING**

There were 3,258 full-time equivalent students attending Chicagoland campuses of the University in the fall of 2012. 28.9% of the tuition revenue from these students came from outside Chicagoland. These out-of-area students spent approximately \$2.3 million in the region on apartments, automobiles, food, entertainment and the like.

Revenue from these students who come from outside Chicagoland is injected into the local economy each time students go to a restaurant, purchase gasoline or other commodities at local businesses. Students from outside Chicagoland stimulate the regional economy. In short, this means that the Aurora impact on Chicagoland comes from non-Chicagoland students.

## **VISITOR SPENDING**

Almost 9,000 people from outside Chicagoland came last year to the Aurora campus for conferences, graduation and to visit their children. Then there were the potential students who come to look at AU, returning alumni and many others. Together they spent approximately \$1.1 million in the region.

## **ALUMNI IMPACT**

The Aurora University contribution to Chicagoland in human terms is substantial - \$187 million. It can include high school teachers, or accountants at local businesses. People who obtained their bachelor's degree from Aurora earned an average of \$19,815 more per year than those who ended their education with high school. AU alumni who earned masters degrees received an average of \$25,343 more than college graduates.

When these increased incomes are multiplied across the over 17,000 working AU alumni in Chicagoland, they account for \$374 million added to the Chicagoland economy. Half of this amount or \$187 million is included in the AU Economic Impact.

The alumni economic impact is based on several factors. The impact of an individual alumna is the difference between what she earns due to an AU degree and what she would earn with a high school diploma. Half of this difference is included to account for the fact that she could have received her degree from any of a number of other institutions. This calculation is summarized in the formula shown below.

$$\begin{array}{r} \text{Number of} \\ \text{Chicagoland} \\ \text{working alumni} \end{array} \times \begin{array}{r} \{ \text{AU alumni average earnings} \} - \\ \{ \text{High school graduate average earnings} \} \end{array} \times 50\% = \begin{array}{r} \text{AU Alumni} \\ \text{Chicagoland} \\ \text{Economic Impact} \end{array}$$

## **SOCIAL BENEFIT IMPACT**

Education pays – not just in better incomes but also in better lifestyles. Better living pays benefits to society. University graduates tend to possess greater self-esteem; live longer, healthier lives; assume greater civic responsibility; enjoy more aesthetic interests; attend more athletic events; exercise better moral judgment; and nurture children more effectively than do those without University educations. (Baum & Payea, 2005; Behrman & Stacey, 1997)

Absenteeism, alcoholism, crime, incarceration, unemployment, and welfare place heavy costs on governments and businesses. Rates for these behaviors decline as education levels increase. Because of the lower rates of these behaviors college graduates incur lower costs to society.

The total value of these reduced social costs is \$218 million. Fifty percent of this Social Benefit Impact of Aurora alumni or \$109 million in Chicagoland is included in this

report. This assigned some of the responsibility for social benefits to the University and left some credit to other factors such as family background and personal characteristics.

Aurora , therefore, has a Social Benefit Impact on Chicagoland because of the choices made by its alumni who live here. Exhibit 9 shows the value of these reduced social costs

### **Exhibit 9**

<b>SOCIAL BENEFIT IMPACT IN CHICAGOLAND</b>	
Reduced Absenteeism	\$12,956,320
Reduced Alcoholism	\$3,797,403
Reduced Crime Victim Cost	\$5,413,280
Reduced Incarceration	\$16,195,750
Reduced Smoking	\$6,510,377
Reduced Unemployment	\$38,508,120
Reduced Welfare Expenditures	\$25,643,170
<b>Total Aurora University Social Benefit Impact</b>	<b>\$109,024,420</b>

## **CONCLUSION**

The significant economic impact of Aurora University on Chicagoland can be felt in a number of ways. The University produces alumni who earn more than their counterparts who did not attend University. These alumni adopt better lifestyles and thus save the community on expenses such as healthcare. The University provides employment opportunities, not only through jobs on campus but also through jobs generated by business the University and its members conduct locally. The University and those associated with it pumped \$340 million into the Chicagoland economy in 2012-2103. Chicagoland receives substantial revenues from the University's operations. It is clear that in addition to the University's profound contributions to the cultural life of the community it is making sizable economic contributions as well.

## **THE AURORA UNIVERSITY ECONOMIC IMPACT ON KANE COUNTY**

This report seeks to determine the importance of Aurora University to Kane County. It represents a careful examination of the evidence available from detailed research conducted according to the best practices in the industry.

In 2012-2103 the University contributed \$115.3 million in additional spending to Kane County including:

- \$17.5 million in direct spending
- \$11.0 million in secondary business spending
- \$54.6 million in increased alumni earnings
- \$32.1 million in social benefits

These statistics were determined by tracing the dollars spent, the people employed, the assets added, the taxes affected, and the sales generated in Kane County.

### **THE AURORA UNIVERSITY DIRECT SPENDING IMPACT**

The Direct Spending Impact is based on the amount of “outside money” brought to Kane County and “inside money” that is retained in Kane County by Aurora University. “Outside money” is tuition revenue, grants, and contributions originating outside Kane County. “Inside money” which is retained is from Kane County residence hall students who choose to attend Aurora rather than North Central College, Northern Illinois University or another outside university.

The share of tuition revenue that came from exporting and import substitution in 2012-2103 was 69.5%. This percentage was multiplied by University vendor spending and payroll in Kane County to determine the Aurora Direct Spending Impact for the region.

Aurora University, its employees, students spent about \$22.9 million in Kane County during the 2012-2103 fiscal year. Of that amount, about \$15.9 million, or 69.5%, can be derived from exporting and import substitution. When the \$1.6 million of out-of area visitor spending is added the Aurora Direct Spending during 2012-2103 totals about \$17.5 million.<sup>1</sup>

The Aurora University Direct Impact on Kane County in 2012-2103 was approximately \$17.5 million. This is money derived from outside Kane County that was spent by the University and its employees, students, and visitors. This money was spent and re-spent several times in the community. Some of it was paid to local merchants or was received as income by local residents. The amount of the turnover was \$11 million in 2012-2013. This is also known as the multiplier effect: That is how an infusion of revenue then echoes through an economy to stimulate additional revenue.

Of the \$17.5 million spent in Kane County by the University community, the University contributed 16% of this flow, or \$2.7 million. AU faculty and staff spent 61% of that

amount, or \$10.7 million with businesses in the County. The University's students who came from outside the County accounted for \$2.5 million, or 14%, of the total spending on food, clothing, and other goods. Visitors to the campus and University events represented \$1.6 million or 9%. Exhibit 10 shows these totals.

### **Exhibit 10**

#### **DIRECT SPENDING BY AURORA UNIVERSITY IN KANE COUNTY**

University Spending	\$2,721,186
Faculty & Staff Spending	\$10,683,116
Student Spending	\$2,526,950
Visitor Spending	\$1,601,049
<b>Total Direct Spending</b>	<b>\$17,532,301</b>

### **DIRECT UNIVERSITY SPENDING**

Aurora University spent \$3.9 million in Kane County during the 2012-2103 fiscal year. Of that amount, \$2.5 million can be attributed to exporting and import substitution. Not included in this total are salaries to employees, loans and grants to students, and purchases of goods and services from organizations outside of the County

### **EMPLOYEE SPENDING**

In 2012-2103 the payroll for people employed at Aurora University who lived in Kane County was \$15.4 million. This includes the value of salaries and all benefits. Of this income, \$10.7 million was earned from exporting and import substitution and spent in Kane County.

### **STUDENT SPENDING**

69.5% of the tuition revenue from Aurora Campus students came from outside Kane County. These out-of-area students spent approximately \$2.5 million in the region on apartments, automobiles, food, entertainment and the like.

Revenue from these students who come from outside Kane County is injected into the local economy each time students go to a restaurant, purchase gasoline or other commodities at local businesses. Students from outside Kane County stimulate the regional economy. In short, this means that the Aurora impact on Kane County comes from non-Kane County students.

### **VISITOR SPENDING**

Almost 27,000 people from outside Kane County came last year to the Aurora campus for conferences, graduations and to visit their children. Then there are the young people who come to look at AU, returning alumni and many others. Together they spent about \$1.6 million in the County.

## ALUMNI IMPACT

The Aurora University contribution to Kane County in human terms is substantial - \$54.6 million. It can include high school teachers, or accountants at businesses in the County. People who obtained their bachelor's degree from Aurora earned an average of \$19,858 more per year than those who ended their education with high school. AU alumni who earned Masters Degrees received an average of \$25,837 more than college graduates.

When these increased incomes are multiplied across the almost 5,000 working AU alumni in Kane County, they account for \$109.2 million added to the Kane County economy. Half of this amount or \$54.6 million is included in the Aurora Economic Impact.

The alumni economic impact is based on several factors. The impact of an individual alumna is the difference between what she earns due to an Aurora degree and what she would earn with a high school diploma. Half of this difference is included to account for the fact that she could have received her degree from any of a number of other institutions. This calculation is summarized in the formula shown below.

$$\begin{array}{l} \text{Number of} \\ \text{working alumni} \\ \text{in Kane County} \end{array} \times \begin{array}{l} \{ \text{AU alumni average earnings} \} - \\ \{ \text{High school graduate average earnings} \} \end{array} \times 50\% = \begin{array}{l} \text{AU Alumni Kane} \\ \text{County Economic} \\ \text{Impact} \end{array}$$

## SOCIAL BENEFIT IMPACT

Education pays – not just in better incomes but also in better lifestyles. Better living pays benefits to society. University graduates tend to possess greater self-esteem; live longer, healthier lives; assume greater civic responsibility; enjoy more aesthetic interests; attend more athletic events; exercise better moral judgment; and nurture children more effectively than do those without University educations. (Baum & Payea, 2005; Behrman & Stacey, 1997)

Aurora University alumni incur lower health and human service costs than do high school graduates. AU alumni are less likely to be substance abusers and less likely to be unemployed or receiving welfare benefits. They also have lower probabilities of incarceration and incurring crime victim costs.

The total value of these reduced social costs in Kane County is \$64.2 million. Fifty percent of this Social Benefit Impact of Aurora alumni or \$32.1 million in Kane County is included in this report. This assigned some of the responsibility for social benefits to the University and left some credit to other factors such as family background and personal characteristics. Exhibit 11 below shows the total social benefits of Aurora University.

**Exhibit 11**

<b>SOCIAL BENEFIT IMPACT IN KANE COUNTY</b>	
Reduced Absenteeism	\$3,807,000
Reduced Alcoholism	\$1,138,089
Reduced Crime Victim Cost	\$1,579,360
Reduced Incarceration	\$4,735,390
Reduced Smoking	\$1,735,230
Reduced Unemployment	\$11,395,360
Reduced Welfare Expenditures	\$7,736,968
<b>Total Aurora University Social Benefit Impact</b>	<b>\$32,127,398</b>

**CONCLUSION**

The significant economic impact of Aurora University on Kane County can be felt in a number of ways. The University produces alumni who earn more than their counterparts who did not attend University. These alumni adopt better lifestyles and thus save the community on expenses such as healthcare. The University provides employment opportunities, not only through jobs on campus but also through jobs generated by business the University and its members conduct locally. The University and those associated with it pumped \$115.3 million into the Kane County economy in 2012-2103. Kane County receives substantial revenues from the University's operations. It is clear that in addition to the University's profound contributions to the cultural life of the community it is making sizable economic contributions as well.

## **THE JOHN C. DUNHAM STEM PARTNERSHIP SCHOOL ECONOMIC IMPACT ON THE AURORA AREA**

The John C. Dunham STEM Partnership School<sup>2</sup> will open in August 2014. The Economic Impact of the John C Dunham STEM Partnership School on the Aurora area for the 2014-2015 academic year will be \$6.4 Million.

The John C. Dunham STEM Partnership School will serve students in grades three through eight from the Aurora East, Aurora West, Indian Prairie and Oswego school districts. The school is expected to prepare the community's talented young learners in mathematics and science in ways that will ignite, sustain and increase their interest, motivation and achievement. The Dunham School will train teachers who will return to their home school districts as leaders in mathematics and science education.<sup>3</sup>

Research has highlighted deficiencies in the critical subjects of science, technology, engineering and mathematics in the United States even as globalization makes these high-demand fields more important. Although there has been progress, students—particularly minorities and those from low-income families—are still not achieving at levels necessary to compete for 21st century jobs.

In response to this national challenge, Aurora University and its community partners established the Mathematics and Science Education Center of Aurora University in 2009 through an award from the Dunham Fund. Under the leadership of the Institute for Collaboration of Aurora University, the center is creating an innovative model for mathematics and science education in a diverse urban community, which can be replicated across the country.

The Mathematics and Science Education Center consists of programs that use the community as a laboratory to create leaders of tomorrow and improve workforce development. The center's programs include bachelor's and master's degrees in mathematics and science education, workshops and institutes for teachers, and after-school and summer programs for students.

### **DUNHAM STEM PARTNERSHIP SCHOOL ECONOMIC IMPACT**

During the 2014-2015 academic year the John C Dunham STEM Partnership School will contribute \$6.4 Million to the Aurora area including:

- \$3 million in increased net economic activity
- \$1 million in increased grant funding
- \$3.4 million in increased lifetime earnings of students

#### **Increased Economic Activity**

The initiative will attract families to the community who value STEM education resulting in increases in property values and sales tax revenue in Aurora and surrounding area. This will lead to an increase in net economic activity of at least \$3 million per year.<sup>4</sup>

The STEM Partnership School will positively impact retention of families who have school-age children who reside within the partner school districts. The new STEM Partnership School and the STEM curriculum developed for the school districts will have the ability to attract and retain corporations who focus on science, technology, engineering and mathematics as their primary fields of work.

### **Increased Grant Funding**

In addition, the project will attract at least \$1 million in new grant funding for curriculum development and undergraduate and graduate study in STEM education.

### **Increased Lifetime Earnings**

Eighth grade students who leave the John C. Dunham STEM Partnership School can be expected to earn \$3.4 million more over their lifetimes because of their STEM education. This is based on the following sequence. STEM education improves aptitude test scores as shown on standardized tests. Higher test scores increase the probability of being on track for college readiness by grade 11. College readiness is an excellent predictor for college success and completion. Both college attendance and college completion yield higher average lifetime earnings.

It has been shown that STEM education raises student performance on national aptitude tests. The US Department of Education (Abt Associates Inc., 2010) in its *2008 Annual Report* investigated 626 Math-Science Partnership (MSP) projects between high-need school districts and institutes of higher education. This report found an increase in content knowledge (67% in math and 73% in science) involving more than 57,000 teachers and a resulting 13% increase in mathematics and a 9% increase in science proficiency levels involving their 2.7 million students.<sup>5</sup>

Work at Aurora University (Abler, 2010 and Aurora University, 2012) also demonstrates improvements in the performance by elementary school students who receive STEM education. The classes of teachers who were enrolled in the Aurora University Master's Degree in Teacher Leadership (MATL) were tested. These students were given the ISAT (Illinois Standards Achievement Test) Math Test twice. The first time was in the year before their teachers had learned STEM teaching methods. The second time was in the year after their teachers had received STEM instruction.

Fourth grade students did significantly better in fifth grade math because of the STEM education their teachers had received. The same was true for the performance of seventh grade students when they got to eighth grade. Between 2011 and 2012 fourth graders who were by taught math using STEM had improved their ISAT scores by an average of 17 points by the time they were in 5<sup>th</sup> grade (Aurora University, 2012).

Elementary school test scores have been used to predict success in college (Gavin, 2011 and Zavitkosky, 2010). Dr. Paul Zavitkovsky of the Urban Education Leadership Program at the University of Illinois-Chicago has identified ISAT scale scores that indicate when students are likely to be on-track for college readiness at grades 3-8 (i.e.

have a 50-50 or better likelihood of meeting or exceeding college-readiness benchmarks in eleventh grade).<sup>6</sup>

The ACT has identified college readiness benchmarks for English composition, reading, math and science (Allen and Sconing, 2011). In its report, ACT says the benchmarks are set at scores at which a student has a 50% chance of obtaining a course grade of B or higher in a related college-level course in the first year of college.

A Dunham School eighth grade class can be expected to include an estimated five more children who are on track for college-readiness than can be expected from classes of the same size from traditional schools. This number is based on data from Aurora University, the University of Illinois-Chicago and ACT.

To this estimate we add several caveats. Our number could underestimate the benefits of the Dunham STEM Partnership School because the children attend for six full years. This is five years longer than were involved in the Abler study referenced above. Our number could overestimate the benefits because much research shows that academic improvements from educational interventions diminish quickly. However it has also been shown that educational interventions produce improvements in emotional and behavioral attributes that last for decades. (Gibbs, Ludwig and Miller, 2013). Because of these caveats we have reduced our number of additional 8<sup>th</sup> graders who are on track for college readiness from 5 to 3.5.

However it is fairly certain that children who are on track for college readiness have better prospects in life than those who are not on track. This means that the Dunham STEM Partnership School can be expected to graduate 3.5 more eighth graders each year with the opportunities to enter college, complete college, and earn higher lifetime earnings than can be expected from classes from traditional schools.

Of course not all college ready high school graduates will enter college. A smaller share of those who begin college will actually complete a bachelor's degree. However each level of education completed will on average result in higher annual and lifetime earnings.

Professor Anthony Carnevale of Georgetown University has produced estimates of lifetime earnings for different levels of educational attainment (Carnevale, Rose and Cheah, 2011). Exhibit 12 shows some results of his work. The table shows, for example, that a college graduate should earn about \$714,000 more over his or her lifetime than would a high school graduate.

**Exhibit 12**  
**MEDIAN LIFETIME EARNINGS**  
**BY EDUCATIONAL ATTAINMENT**

<b>Level of Education</b>	<b>Median Lifetime Earnings</b>
Less than High School	\$1,171,600
High school graduate	\$1,304,000
Some college	\$1,547,000
Associate's degree	\$1,727,000
Bachelor's degree	\$2,268,000
Master's degree	\$2,671,000
Doctorate degree	\$3,252,000
Professional degree	\$3,648,000

When Carnevale's work is applied to the estimate of higher on track numbers we estimate that children who complete 8<sup>th</sup> grade at the Dunham STEM Partnership School will earn an additional \$3.4 million in their lifetimes than eighth graders from traditional schools

**SOCIAL BENEFITS**

Education pays not just in terms of earnings but in terms of stable behavioral patterns which yield significant social benefits. A recent study (Chetty, Friedman and Rockoff, 2014) concludes that a teacher with higher value-added raises the probability of college attendance, reduces the probability of teen pregnancy, and increases earnings at age 28.<sup>7</sup>

They conclude that good teachers improve student outcomes up to a decade after they graduate from a large urban school district. The authors match more than one million student records with post-graduation earnings and college attendance information, and then explore the effect of being in a particular teacher's class on earnings and college matriculation.

They find that spending a single year in grades 4 through 8 in a classroom taught by a teacher with higher value-added raises the probability of college attendance, reduces the probability of teen pregnancy, and increases earnings at age 28. A year in the classroom with a teacher who has a value-added that is one standard deviation above the mean is associated with an increase in the probability of college attendance of 0.8 percent, from a mean of 37 percent. The probability of teen pregnancy falls by 0.61 percent from a mean of 13.4 percent; the probability of working at age 28 rises by about 0.4 percent, and annual earnings at age 28 rise by \$350, or about 1.7 percent. These effects occur even though the estimates suggest that an individual teacher's influence on test scores falls to 25 percent of its initial impact after several years.

The results of this study of large urban school districts applies in principle to smaller suburban districts in the Aurora area. Though many of the graduates of the Dunham STEM partnership school may not attend or graduate from college most will have better life outcomes than they otherwise would have had.

## **CONCLUSION**

During the 2014-2015 academic year the John C Dunham STEM Partnership School will contribute \$6.4 Million to the Aurora area including:

- \$3 million in increased net economic activity
- \$1 million in increased grant funding
- \$3.4 million in increased lifetime earnings of students

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### NOTES

- 1) The Aurora Direct Spending Impact on Kane County of \$17.5 million is quite close to the AU Direct Spending Impact on Chicagoland. This is because the Chicagoland figure is derived by from multiplying a large spending amount by a low exporting and import substitution rate. The Kane County figure is derived from a smaller spending total multiplied by a higher exporting and import substitution percentage.
- 2) STEM is an abbreviation for Science, Technology, Engineering and Mathematics.
- 3) Material for this section was retrieved from the Aurora University STEM Web site on February 10, 2014. The web address is <http://www.stem.aurora.edu/>
- 4) Material for this section is from an undated report entitled “CAPITAL PROJECT FOR AURORA, ILLINOIS.” The report was written by Aurora University personnel and submitted to the office of the Mayor of Aurora which gave us permission to quote it.
- 5) Material for this section is from Alan Zollman, Mansour Tahernezehadi and Penny Billman. “Science, Technology, Engineering and Mathematics Education in the United States: Areas of Current Successes and Future Needs. *International Journal of Science in Society*. Volume 3. Number 2. 2012
- 6) Material for this section is taken from Larry Gavin. “Setting Targets for Grades 3-12 Linked to the ACT’s College Readiness Benchmarks . Evanston, Illinois: Evanston Round Table. May 23, 2011.
- 7) Material for this section is taken from the January 2014 issue of National Bureau of Economic Research Digest available at <http://www.nber.org/digest/jan14/w19424.html>