

# Economic and Fiscal Impact Analysis of Rayonier's Performance Fibers Mill in Jesup, Georgia

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## Prepared for:

**Rayonier Inc.**

1301 Riverplace Blvd., Suite 2300  
Jacksonville, Florida 32207



## Prepared by:

*Enterprise Innovation Institute*  
**Georgia Institute of Technology**

75 Fifth Street NW, Suite 300  
Atlanta, Georgia 30308



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# Executive Summary

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The Jesup Mill (the mill), one of Rayonier’s facilities, produces performance fibers that are in high demand around the globe. During the time period analyzed, the mill, which houses three fiber lines, was producing approximately 330,000 metric tons of high-purity cellulose specialties and 260,000 metric tons of absorbent materials each year. In 2013, Rayonier undertook a \$380 million capital project to convert the third line to cellulose specialties and now exclusively produces those product lines at the Jesup mill. These improvements are expected, in the long-term, to reduce overall tonnage of products produced, but increase revenues.

The purpose of this analysis is to quantify the economic and fiscal impacts of the Jesup mill in the local economy in an ordinary operating year. The study measures the facility’s contribution to the local economy in 2011 by quantifying its activity in terms of *economic output*, *employment*, and *employee compensation*. Economic output is typically defined as business revenues, and employee compensation is defined as income, paid by employers. Total activity is generally referred to as the “multiplier effect.” This effect occurs whenever dollars are brought into a region’s economy and recirculated before exiting or “leaking out.”

The economic impact of a company on a specific geographic area’s economy is measured with an input-output model. IMPLAN is such a model widely used in the United States at all levels of geography including the whole nation, by state, multi-county regions, and single counties.

## Economic Impact Results

Rayonier’s Jesup Mill generates considerable direct economic benefits for the local economy. The mill’s direct employment of **781** in year 2011, accounted for 6.5 percent of Wayne County’s total employment. These workers were paid nearly **\$89.5 million in wages and salaries (including benefits)** and **generated an economic output of \$807.8 million in 2011.**

Each  
Rayonier  
job in  
Wayne  
County  
supported  
an  
additional  
1.9 local  
jobs

While a large share of the impacts are attributed to direct employment and earnings, the total impact (direct, indirect, and induced) is important to the region's economy. The mill's ongoing operations and employee spending generate ripple impacts throughout the region, supporting an additional **1,494 indirect and induced jobs** with **employee compensation of \$50.5 million** and **economic output of \$171.1 million**. This brings the total economic impact to 2,275 jobs that generated \$140 million in wages and salaries and nearly \$978.9 million in output. Table E-1 shows a summary of the economic impact of Jesup mill's in Wayne County's economy.

**Table E-1: Economic Impact of Rayonier's Jesup Mill (2011)**

Impact Type	Employment	Wages & Salaries	Output
Direct Effect	781	\$89,545,237	\$807,785,234
Indirect Effect	941	\$29,795,222	\$108,596,420
Induced Effect	553	\$20,731,575	\$62,528,793
<b>Total Effect</b>	<b>2,275</b>	<b>\$140,072,034</b>	<b>\$978,910,447*</b>

\*Not all output remains in the local economy due to the fact that many of the mill's business transactions occur outside the region and internationally.

## Fiscal Impact Results

The fiscal impact analysis was calculated by estimating the revenues associated with Jesup Mill's total economic activity and subtracting the costs associated with providing services to Wayne County's households and companies associated with that activity. Table E-2 provides the fiscal impact estimates based on total impacts. **Rayonier's Jesup mill generated an estimated \$4.4 million in revenues for Wayne County and its schools in calendar year 2011.** When the costs of providing services to all employees were deducted from these revenues, the **net contribution of the mill to local tax revenues in 2011 was \$3.6 million.**

**Table E-2: Fiscal Impact of Rayonier's Jesup Mill (2011)**

	Wayne County	Schools	TOTAL
<b>TOTAL REVENUES</b>	\$2,342,672	\$2,027,985	\$4,370,657
<b>TOTAL EXPENDITURES</b>	\$549,310	\$188,376	\$737,686
<b>NET REVENUES</b>	<b>\$1,793,362</b>	<b>\$1,839,609</b>	<b>\$3,632,971</b>

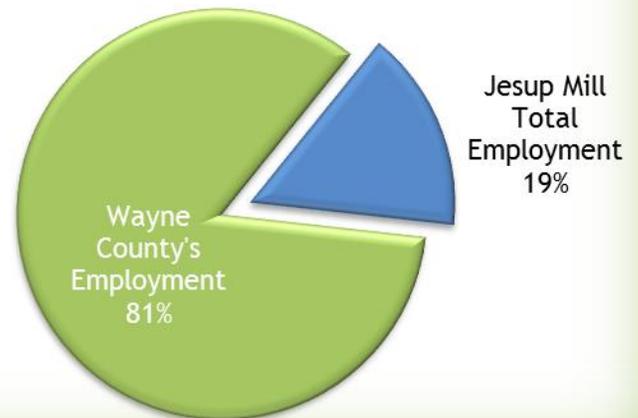
## Shipping offshore

The mill shipped 21,288 containers (ocean freight) in calendar year 2011 which accounted for more than 62 percent of Wayne County's ocean freight of 34,268.

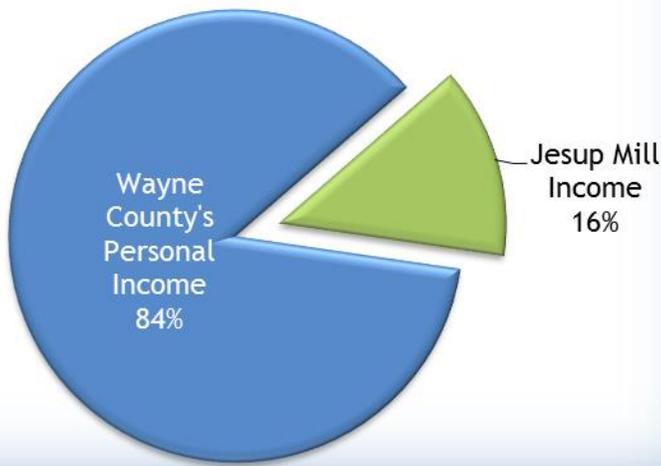
## Jesup Mill's contribution to the County's employment and Income

Jesup Mill supports a significant proportion of Wayne County's economic activity. More important, it creates and supports high-paying jobs for Wayne County's citizens. In 2011, the mill supported 2,275 total jobs or nearly 19 percent of the County's total employment of 12,015. The mill's direct employment of 781 accounted for 6.5 percent of the County's employment in 2011.

**Figure E-1: Jesup Mill's Contribution to Wayne County's Total Employment (2011)**



**Figure E-2: Jesup Mill's Contribution to Wayne County's Total Income (2011)**



The mill's employee earnings of \$89.5 million accounted for nearly 10 percent of Wayne County's total personal income of \$883 million in 2011. When taking into account the earnings of all jobs supported by mill's direct employment, (total earnings of \$140 million), the mill's contribution to the county's total personal income increases to nearly 16 percent.

## SECTION 1

# Introduction

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Rayonier's performance fibers are in high demand around the globe. These fibers are all produced in two facilities in the Southeast U.S. The Jesup mill, which houses three fiber lines, and the Fernandina Beach mill produce a combined total production of approximately 745,000 metric tons of high-value cellulose specialties and absorbent materials annually. Of these, approximately 330,000 metric tons of high-purity cellulose specialties and 260,000 metric tons of absorbent materials each year are produced in Jesup.

The high-purity cellulose specialties are derived from wood chips that are processed into highly purified custom cellulose pulps designed to meet rigorous specifications. What starts as simple wood chips is transformed into high-value cellulose specialties that become a building block in many products that you use every day. The cellulose specialties products are used in the manufacture of flat panel televisions, computer screens, impact-resistant plastics, filters, tires, paint, food, pharmaceuticals, and many other consumer products.

The mill is currently undergoing an expansion that will convert the third line to cellulose specialties. The project, expected to be completed this summer (2013), is estimated to increase the production capacity of cellulose specialties by 190,000 MT. The project was driven by Rayonier's customers and their need to grow their businesses that depend on Rayonier's unique ability to produce this highly specialized product. This conversion of a production line represents Rayonier's exit from traditional pulp markets as the company moves its performance fibers business entirely into the specialty chemical sector.

At its conclusion, Rayonier's transformational Cellulose Specialties Expansion (CSE) project will have produced a \$375-\$390 million capital infusion, with a significant portion of those funds remaining in the state and local economies.

This report will examine the economic impact and fiscal impact of the Jesup mill in Wayne County's economy in 2011. The impact of construction activities and capital infusion are not part of this analysis. The economic impact will quantify the jobs and income that are supported by the mill's activities. The mill purchases goods and services locally which create additional jobs and income. Further, the mill's employees take their income and purchase goods and services which will generate

even more jobs and income. The economic impact is generated using an IMPLAN-based model of Wayne County's economy which simulates the expenditures of the facility and its associated households. It then sums up the total impact in terms of jobs, income, and economic output. The IMPLAN™ model was developed by the Minnesota IMPLAN Group<sup>1</sup> and is nationally recognized as the leading model for this type of analysis.

The fiscal impact will include the revenues and expenditures that accrued to the County as a result of Jesup mill's operations. While the mill's employees and their households generate revenues for the County, they also generate additional costs, i.e., education, public safety, etc. Georgia Tech has developed a fiscal model for the State of Georgia that simulates both the revenues and expenditures and determines the net fiscal impact to the County and schools.

Section 2 explains the methodology used to estimate total economic activity, and quantifies the mill's economic impact in 2011. Section 3 quantifies the facility's impact on local government revenues and costs. Sections 4 and 5 compare Jesup mill's employment and income to Wayne County's total employment and personal income and assess the impact of the mill's shipping activities, respectively.

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<sup>1</sup> Minnesota IMPLAN Group can be accessed at the following URL: <http://www.implan.com>

## Economic Impact Analysis

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The foundation of this type of analysis is economic base theory. Simply put, economic base theory states that economic growth occurs when there is an increase in the flow of money into an area through the export of goods and/or services. The “direct” impact of that economic activity is commonly measured in terms of the number of jobs and/or amount of income the activity represents, and is measured in terms of total output. (See the Appendix for a definition of terms.)

However, the “direct” activity is just the beginning of the total economic impact. The money that flows into the region is used by companies to purchase goods and services. Some of these are purchased locally, while others are purchased outside the region. To the extent that goods and services are purchased locally, they represent an increase in local employment and income, and therefore, have additional economic impact beyond the “direct” impacts. To the extent that goods and services are purchased outside the region, they are said to have “leaked” out of the local economy and have no more local economic impact. The impacts that arise from the purchases of local businesses represent the “indirect” impact of the initial economic activity.

The third and final component of the economic impact is a result of the spending decisions of employees. Local employees spend some of their income within the region, and as mentioned before, some leaks out. Again, to the extent that their income is spent locally, it also generates an additional increase in local employment and income. These impacts represent the “induced” impact of the initial economic activity.

The total economic impact of any economic activity is the sum of the direct, indirect, and induced economic impacts. Obviously, an important aspect of economic impact analysis is the size of the regional economy under review. In a large region (e.g., a state) there would be more opportunity to make local purchases, which means that the new money has more opportunity to be spent locally. Conversely, a small region (e.g., a single county or a group of counties) would experience faster leakage, and consequently, a smaller economic impact.

Table 2-1 shows a summary of the direct values of the economic impact in terms of jobs, wages and salaries, and output as well as the multiplier effect<sup>2</sup> of these jobs, their payroll and additional economic activity created. In 2011, Rayonier's Jesup mill supported 2,275 total jobs in Wayne County. Those jobs represented nearly \$140 million in wages and salaries, and \$978.9 million in total economic output.

**Table 2-1: Economic Impact of Rayonier's Jesup Mill (2011)**

Impact Type	Employment	Wages & Salaries	Output
Direct Effect	781	\$89,545,237	\$807,785,234
Indirect Effect	941	\$29,795,222	\$108,596,420
Induced Effect	553	\$20,731,575	\$62,528,793
<b>Total Effect</b>	<b>2,275</b>	<b>\$140,072,034</b>	<b>\$978,910,447</b>

In addition to the direct employment, the mill generates economic activity and supports jobs in other sectors of the local economy. Table 2-2 shows the top 25 industry sectors that are impacted by the operations of the Jesup mill. *Administrative and support services* sector saw the biggest benefits with 221 jobs. *Construction, truck transportation, food services and drinking places and government* round up the top five sectors impacted by the mill's activities.

**Table 2-2. Top 25 Industries Impacted - Employment**

NAICS Code	Sector	Indirect	Induced	Total
561	Administrative support services	207	15	221
230	Construction	210	8	218
484	Truck transportation	116	6	122
722	Food services & drinking places	40	77	117
92	Government & non NAICS	42	47	89
813	Grantmaking, civic, professional & similar orgs	37	42	79
811	Repair & maintenance	60	12	71
621	Ambulatory health care	0	49	49
42	Wholesale Trade	36	8	44
452	General merchandise stores	3	39	42
482	Rail Transportation	40	0	40
521	Monetary authorities	15	14	29

<sup>2</sup> Multiplier effects are derived from an economic impact assessment that requires an input-output model for Wayne County.

623	Nursing & residential care	0	29	29
441	Motor vehicle & parts dealers	1	22	23
445	Food & beverage stores	1	19	20
541	Professional- scientific & technical services	16	5	20
812	Personal & laundry services	1	19	20
624	Social assistance	0	19	19
493	Warehousing & storage	17	2	18
221	Utilities	16	1	17
453	Miscellaneous retailers	1	16	17
562	Waste management & remediation services	14	1	15
446	Health & personal care stores	1	11	12
447	Gasoline stations	1	11	12
448	Clothing & accessories stores	1	11	12

Table 2-3 shows the top 25 industry sectors according to employee compensation added through the multiplier effect. The sector with the highest wages and salaries was *government*, followed by *construction*, *truck transportation*, *rail transportation* and *administrative support services*.

**Table 2-3. Top 25 Industries Impacted - Wages & Salaries**

NAICS Code	Sector	Indirect	Induced	Total
92	Government & non NAICs	\$1,555,791	\$7,230,874	\$8,786,665
230	Construction	\$6,768,180	\$277,074	\$7,045,254
484	Truck transportation	\$4,063,608	\$225,639	\$4,289,248
482	Rail Transportation	\$3,843,443	\$27,507	\$3,870,950
561	Administrative support services	\$2,790,523	\$235,803	\$3,026,326
621	Ambulatory health care	\$70	\$2,341,937	\$2,342,007
811	Repair & maintenance	\$1,717,332	\$315,431	\$2,032,763
221	Utilities	\$1,775,114	\$81,857	\$1,856,971
722	Food services & drinking places	\$625,036	\$1,187,914	\$1,812,949
42	Wholesale Trade	\$1,152,177	\$253,894	\$1,406,071
813	Grantmaking, civic, professional, and similar organizations	\$487,191	\$911,598	\$1,398,788
562	Waste management & remediation services	\$1,293,807	\$95,312	\$1,389,118
521	Monetary authorities	\$638,829	\$582,813	\$1,221,642
452	General merchandise stores	\$67,708	\$920,220	\$987,928
623	Nursing & residential care	\$0	\$801,330	\$801,330
441	Motor vehicle & parts dealers	\$42,102	\$686,810	\$728,911
541	Professional, scientific & technical services	\$551,530	\$148,140	\$699,670
812	Personal & laundry services	\$37,773	\$604,356	\$642,128

517	Telecommunications	\$292,981	\$228,662	\$521,643
522	Credit intermediation & related	\$268,585	\$233,328	\$501,913
624	Social assistance	\$0	\$488,377	\$488,377
445	food & beverage stores	\$31,653	\$430,731	\$462,384
446	Health & personal care stores	\$30,898	\$409,944	\$440,841
511	Publishing industries	\$303,214	\$134,329	\$437,543
444	Building materials & garden dealers	\$32,007	\$317,549	\$349,556

Table 2-4 shows the top 25 industry sectors according to output (economic activity) generated through the multiplier effect. *Construction* and *rail transportation* sectors saw the biggest impact from the mill’s operations followed by *utilities*, *real estate* and *government*.

**Table 2-4. Top 25 Industries Impacted - Output (Economic Activity)**

NAICS code	Sector	Indirect	Induced	Total
230	Construction	\$16,161,739	\$842,183	\$17,003,922
482	Rail Transportation	\$16,146,726	\$115,561	\$16,262,287
221	Utilities	\$14,832,352	\$634,207	\$15,466,559
531	Real estate	\$180,195	\$15,222,128	\$15,402,324
92	Government & non NAICs	\$6,089,461	\$9,109,973	\$15,199,434
484	Truck transportation	\$13,667,442	\$758,910	\$14,426,352
521	Monetary authorities	\$5,476,564	\$4,996,352	\$10,472,916
561	Admin support services	\$8,818,641	\$669,768	\$9,488,409
42	Wholesale Trade	\$5,018,235	\$1,105,817	\$6,124,052
722	Food services & drinking places	\$2,041,897	\$3,880,733	\$5,922,630
517	Telecommunications	\$2,820,226	\$2,201,089	\$5,021,315
621	Ambulatory health care	\$170	\$4,507,092	\$4,507,262
811	Repair & maintenance	\$3,747,679	\$678,082	\$4,425,761
562	Waste management & remediation services	\$3,231,767	\$238,077	\$3,469,844
813	Grantmaking, civic, professional, and similar organizations	\$978,871	\$1,653,801	\$2,632,672
452	General merchandise stores	\$158,088	\$2,148,574	\$2,306,662
541	Professional- scientific & tech services	\$1,509,001	\$453,765	\$1,962,766
441	Motor vehicle & parts dealers	\$95,356	\$1,555,557	\$1,650,914
623	Nursing & residential care	\$0	\$1,502,304	\$1,502,304
511	Publishing industries	\$860,147	\$381,059	\$1,241,207
493	Warehousing & storage	\$940,287	\$89,924	\$1,030,211
445	food & beverage stores	\$67,840	\$923,149	\$990,989
812	Personal & laundry services	\$45,067	\$942,639	\$987,706
522	Credit intermediation & related	\$514,120	\$446,633	\$960,753
447	Gasoline stations	\$41,834	\$913,603	\$955,437

## SECTION 3

# Fiscal Impact Analysis

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In addition to the new jobs, income, and economic output presented in Section 2, the mill's operations and its employees' spending generate fiscal impacts that will accrue to local governments. The two most obvious of these are the property taxes associated with the mill's real and personal property, and sales taxes associated with payroll spending. These impacts are calculated using a proprietary fiscal model that was developed by Georgia Tech - one that has been used for many years in our analysis of projects around the state. The model is based on more than 40 years of data on the State of Georgia budget, as well as state and national level demographic and economic data. It uses statistical modeling to simulate the population and household formation related to employment, and then again uses statistical equations to estimate the various categories of both revenues and expenditures.

As shown in Table 3-1, given the economic activity presented in Section 2, the mill contributed nearly **\$4.4 million in tax revenues** to the County government and its schools. When the county's costs of providing services to the mill's employees (such as public health, safety, and welfare; highways; administration; etc.) are deducted from these revenues, net annual revenues were \$3.6 million for 2011.

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**Table 3-1: Fiscal Impact of Rayonier's Jesup Mill (2011)**

	Wayne County	Schools	TOTAL
Total Revenues	\$2,342,672	\$2,027,985	\$4,370,657
Total Expenditures	\$549,310	\$188,376	\$737,686
Net Revenues	\$1,793,362	\$1,839,609	\$3,632,971

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The fiscal impact was calculated based on the following assumptions:

- Assessed value of real property in 2011: \$25,315,508
- Assessed value of personal property: \$277,361,519
- Assessed value of inventory: \$24,235,478
- Assessed value of Freeport inventory: \$21,224,740
- It is assumed that only 25% of the construction cost (\$20,769,480) was spent locally.

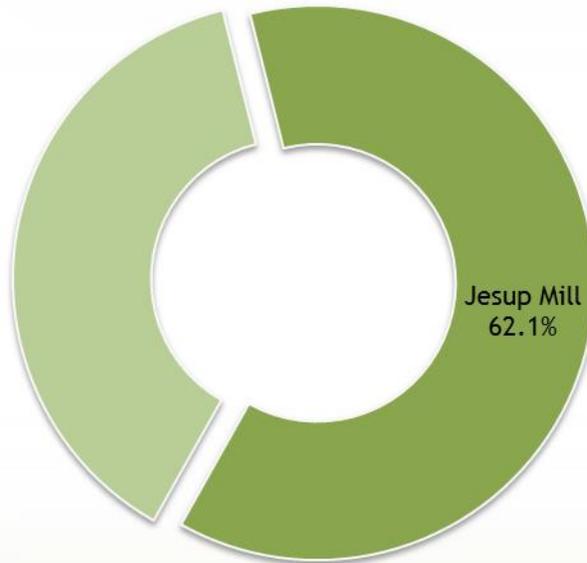
SECTION 4

# Shipping Offshore

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Rayonier’s Jesup mill, with more than 65 percent of its products being exported to 40 countries, is one of Georgia’s ports’ top exporters by container volume. In calendar year 2011, the mill shipped 21,288 containers (ocean freight), more than 62 percent of Wayne County’s total ocean freight<sup>3</sup>.

**Table 4-1. Shipping: Outbound Containers**



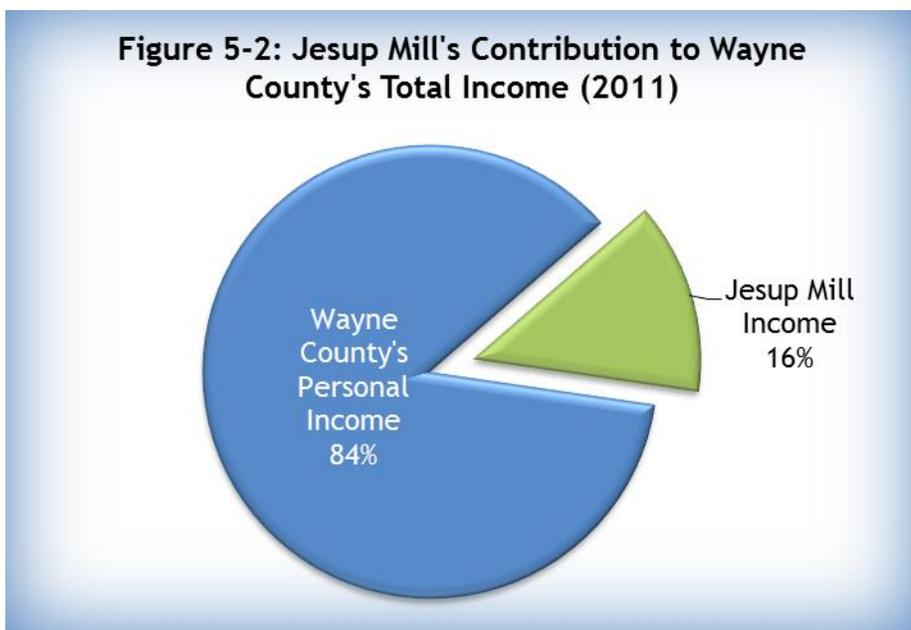
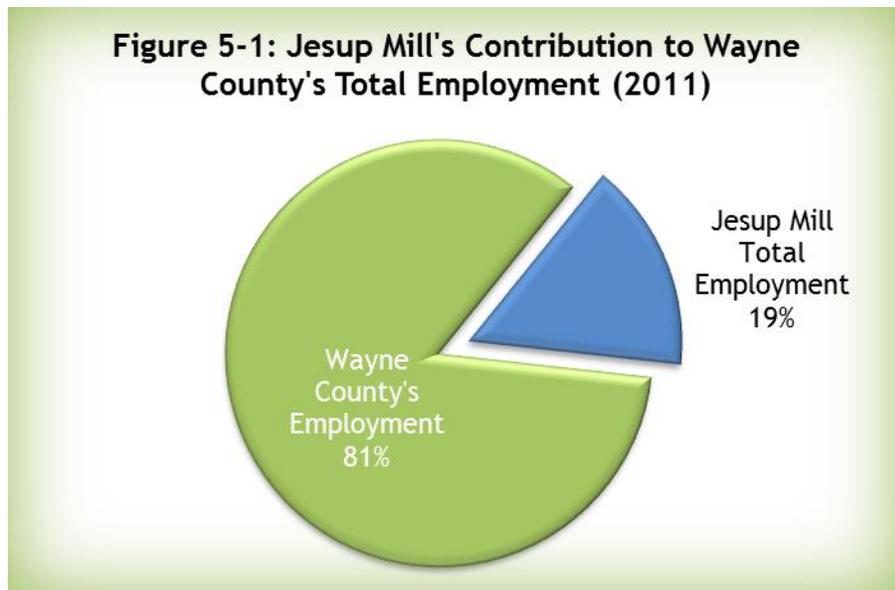
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<sup>3</sup> Source: Georgia Center of Innovation for Logistics : *Wayne County Logistics Spotlight*

SECTION 5

# Jesup Mill's contribution to the County's Employment and Income

Jesup Mill supports a significant proportion of the County's economic activity. More important, it creates and supports high-paying jobs for Wayne County's citizens. In 2011, the mill supported 2,275 total jobs or nearly 19 percent of the County's total employment of 12,015. The mill's direct employment of 781 accounted for 6.5 percent of the County's employment in 2011.



The mill's employee earnings of \$89.5 million accounted for nearly 10 percent of Wayne County's total personal income of \$883 million in 2011. When taking into account the earnings of all jobs supported by mill's direct employment, (total earnings of \$140 million), the mill's contribution to the county's total personal income increases to nearly 16 percent.

# Appendix: Methodology, Definitions and References

## Methodology and Definitions

The economic and fiscal impact of Rayonier's Jesup Mill was measured using IMPLAN, an economic impact assessment model customized to reflect Wayne County's economy. The model estimates the multiplier (indirect and induced) effects of the mill's direct economic activity. Results from an impact analysis are usually shown in terms of "direct" and "total" impact and may also include "indirect" and "induced." These are defined as:

- ✓ *Direct impacts*: output, employment and income associated with the mill's economic activity in the region.
- ✓ *Indirect impacts*: increases in output, employment, and income of businesses in the study region due to purchases contained in the direct impacts.
- ✓ *Induced impacts*: increases in output, employment, and income of businesses in the study region due to spending of payroll from the direct impacts.
- ✓ *Total impacts*: sum of the direct, indirect, and induced impacts.
- ✓ *Multiplier*: The ratio of total impact to direct impact.

## References

IMPLAN Pro, Minnesota IMPLAN Group Inc., Stillwater, MN, 2013.

North American Industrial Classification System (NAICS).

Georgia Department of Labor, ES202 Wage and Employment Data: 2011.

Bureau of Economic Analysis, *Local Area Personal Income and Employment*.