



New York Office:
 120 West Avenue, Suite #303
 Saratoga Springs, NY 12866
 Phone: 518.899.2608
 Fax: 512.777.5045

Other Offices:
 Scarborough, ME
 Brattleboro, VT

MEMORANDUM

To: Michael Aube, President
 Eastern Maine Development Corporation
 From: Tom Dworetzky, Michael N'dolo
 Date: September 30, 2015
 Re: Economic Impact of Old Town and Lincoln Tissue Mill Closures

In response to the closure announcements of the Old Town and Lincoln Tissue mills, Eastern Maine Development Corporation (EMDC) commissioned Camoin Associates to conduct an economic impact analysis in order to determine the direct and indirect effects of the job losses associated with the imminent mill closures.

For the purposes of the analysis, the Eastern Maine Development Corporation region is defined as Penobscot, Piscataquis, Hancock, and Waldo counties. Figures presented in this memo are estimates of losses in terms of jobs, annual earnings, and annual sales that are likely to occur within this four-county region.

There are 195 jobs associated with the Old Town Mill that will be lost, and an additional 179 jobs associated with Lincoln Tissue. With the loss of such a significant number of manufacturing jobs, the region can expect additional indirect job losses as firms located within the region that supply to the mills are forced to lay off workers and/or close as a result of decreased demand for their products and services. In turn, these direct and indirect job losses will decrease the spending power of households in the region and result in further economic losses in retail and other consumer goods sectors, which will have additional regional ripple effects.

Total Economic Impact

The 374 jobs to be lost were used as the direct input into the economic impact model developed by Economic Modeling Specialists, Intl. (EMSI).¹ The table below summarizes the estimated economic impact of these job losses on the region. In addition to the 374 direct jobs, 563 indirect jobs will be lost, for a total of 937 jobs. Total annual earnings losses are estimated to amount to about \$48 million, and total losses in sales will amount to \$277 million annually.

Economic Impact			
	Direct	Indirect	Total
Jobs	(374)	(563)	(937)
Earnings	\$ (27,704,910)	\$ (20,778,683)	\$ (48,483,593)
Sales	\$ (213,201,404)	\$ (64,211,938)	\$ (277,413,342)

Source: EMSI, Camoin Associates

¹ EMSI allows the analyst to input the amount of foregone direct economic activity (jobs) occurring within the region to estimate the spillover effects that the lost jobs have as fewer dollars circulate through the regional economy. This is captured in the indirect impacts and is commonly referred to as the "multiplier effect." See Attachment A for more information on economic impact analysis.



Indirect Impacts

The following table details the 2-digit NAICS sectors within the region that are likely to experience the greatest job losses indirectly as a result of the closures. Some of these industries are part of the mills' supply chains, while others will be impacted due to decreases in consumer spending by the region's households.

Estimated Indirect Job Losses by Industry, 2-digit NAICS			
2-digit NAICS	Industry Description	Estimated Indirect Job Losses	
11	Agriculture, Forestry, Fishing and Hunting	76	
62	Health Care and Social Assistance	60	
31	Manufacturing	58	
44	Retail Trade	55	
56	Administrative and Support and Waste Management	54	
72	Accommodation and Food Services	39	
81	Other Services (except Public Administration)	32	
54	Professional, Scientific, and Technical Services	29	
23	Construction	26	
90	Government	25	
48	Transportation and Warehousing	25	
42	Wholesale Trade	20	
53	Real Estate and Rental and Leasing	13	
52	Finance and Insurance	13	
71	Arts, Entertainment, and Recreation	10	
61	Educational Services	10	
51	Information	6	
22	Utilities	5	
55	Management of Companies and Enterprises	3	
21	Mining, Quarrying, and Oil and Gas Extraction	2	
	Total	563	

Source: EMSI, Camoin Associates

Agriculture, Forestry, Fishing, and Hunting is the sector expected to be most affected in terms of indirect job losses, with an estimated 76 jobs to be shed as a result of the closures. Health Care will lose 60 jobs, Manufacturing will lose an additional 58 jobs beyond those shed at the mills, and Retail is expected to lose 55 jobs.



The table below provides finer detail as to the specific industries (this time at the 4-digit NAICS level) that will experience indirect job losses. Logging is likely to lose 56 jobs, followed by Sawmills (33 jobs), Services to Buildings and Dwellings² (32 jobs), and Restaurants (29 jobs).

Industries with Highest Indirect Job Losses, 4-digit NAICS		
4-digit NAICS	Industry Description	Estimated Indirect Job Losses
1133	Logging	56 
3211	Sawmills and Wood Preservation	33 
5617	Services to Buildings and Dwellings	32 
7225	Restaurants and Other Eating Places	29 
6221	General Medical and Surgical Hospitals	15 
9036	Education and Hospitals (Local Government)	12 
9039	Local Government, Excluding Education and Hospitals	11 
3221	Pulp, Paper, and Paperboard Mills*	11 
4451	Grocery Stores	10 
4841	General Freight Trucking	9 

*Represents additional job losses beyond those at Old Town and Lincoln Tissue mills

Source: EMSI, Camoin Associates

Conclusion

In sum, the direct loss of 374 manufacturing jobs resulting from the Old Town and Lincoln Tissue mill closures will lead to an estimated 563 additional layoffs throughout the Eastern Maine region. Collectively, these 937 jobs amount to approximately 0.7% of all regional employment.

² Includes services such as extermination and pest control, janitorial, landscaping, carpet and upholstery cleaning, and others.



Attachment A: What is economic impact analysis?

The purpose of conducting an economic impact study is to ascertain the total cumulative changes in employment, earnings and output in a given economy due to some initial "change in final demand". To understand the meaning of "change in final demand", consider the installation of a new widget manufacturer in Anytown, USA. The widget manufacturer sells \$1 million worth of its widgets per year exclusively to consumers in Canada. Therefore, the annual change in final demand in the United States is \$1 million because dollars are flowing in from outside the United States and are therefore "new" dollars in the economy.

This change in final demand translates into the first round of buying and selling that occurs in an economy. For example, the widget manufacturer must buy its inputs of production (electricity, steel, etc.), must lease or purchase property and pay its workers. This first round is commonly referred to as the "Direct Effects" of the change in final demand and is the basis of additional rounds of buying and selling described below.

To continue this example, the widget manufacturer's vendors (the supplier of electricity and the supplier of steel) will enjoy additional output (i.e. sales) that will sustain their businesses and cause them to make additional purchases in the economy. The steel producer will need more pig iron and the electric company will purchase additional power from generation entities. In this second round, some of those additional purchases will be made in the US economy and some will "leak out". What remains will cause a third round (with leakage) and a fourth (and so on) in ever-diminishing rounds of spending. These sets of industry-to-industry purchases are referred to as the "Indirect Effects" of the change in final demand.

Finally, the widget manufacturer has employees who will naturally spend their wages. As with the Indirect Effects, the wages spent will either be for local goods and services or will "leak" out of the economy. The purchases of local goods and services will then stimulate other local economic activity; such effects are referred to as the "Induced Effects" of the change in final demand.

Therefore, the total economic impact resulting from the new widget manufacturer is the initial \$1 million of new money (i.e. Direct Effects) flowing in the US economy, plus the Indirect Effects and the Induced Effects. The ratio between Direct Effects and Total Effects (the sum of Indirect and Induced Effects) is called the "multiplier effect" and is often reported as a dollar-of-impact per dollar-of-change. Therefore, a multiplier of 2.4 means that for every dollar (\$1) of change in final demand, an additional \$1.40 of indirect and induced economic activity occurs for a total of \$2.40.

Key information for the reader to retain is that this type of analysis requires rigorous and careful consideration of the geography selected (i.e. how the "local economy" is defined) and the implications of the geography on the computation of the change in final demand. If this analysis wanted to consider the impact of the widget manufacturer on the entire North American continent, it would have to conclude that the change in final demand is zero and therefore the economic impact is zero. This is because the \$1 million of widgets being purchased by Canadians is not causing total North American demand to increase by \$1 million. Presumably, those Canadian purchasers will have \$1 million less to spend on other items and the effects of additional widget production will be cancelled out by a commensurate reduction in the purchases of other goods and services.

Changes in final demand, and therefore Direct Effects, can occur in a number of circumstances. The above example is easiest to understand: the effect of a manufacturer producing locally but selling globally. If, however, 100% of domestic demand for a good is being met by foreign suppliers (say, DVD players being imported into the US from Korea and Japan), locating a manufacturer of DVD players in the US will cause a change in final demand because all of those dollars currently leaving the US economy will instead remain. A situation can be envisioned whereby a producer is serving both local and foreign demand, and an impact analysis would have to be careful in calculating how many "new" dollars the producer would be causing to occur domestically.