Economic Impacts of Rail Transit on Recreational Shore Communities: Case of the North Jersey Coast Line

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Economic Impacts of Rail Transit on Recreational Shore Communities
Case of the North Jersey Coast Line

Devajyoti Deka, Michael Lahr, Thomas Marchwinski, and Maia de la Calle

This study estimated the impact of spending by North Jersey Coast Line (NJCL) riders during summer weekends on the economies of the Jersey Shore communities known for beach-oriented recreational activities. The NJCL is a commuter rail line that provides many workers with access to their workplaces on weekdays throughout the year. The line also provides a large number of recreational visitors from New York City and other parts of New Jersey with direct access to the Jersey Shore communities on summer weekends. To estimate the economic benefits to the shore communities from spending by NJCL riders on summer weekends, this study used a software program (R/ECON) regional input–output (I-O) model developed by the Rutgers Economic Advisory Service of Rutgers University, New Brunswick, New Jersey. Visitor expenditure data from an onboard survey of NJCL riders were used as model inputs. The survey was conducted during the summer of 2013 and was completed by 2,241 riders returning from the shore area. The R/ECON I-O model provided estimates of economic benefits to the shore communities in terms of jobs, earnings, gross domestic product, state taxes, and local taxes. The model also generated return-on-investment multipliers for these variables. The study showed that the $14.8 million spent by NJCL riders on summer weekends in the shore communities generated approximately 225 annualized jobs, more than $9 million in earnings, and more than $1 million in state taxes. More than 80% of the economic benefit was generated by out-of-state visitor spending.

Several studies, including a few sponsored by the Transportation Research Board, have alluded to or demonstrated the positive impacts of public transit on local economies. Some of these and other studies have specifically mentioned the benefits from transit service to tourist destinations, but only a handful actually estimated the economic impacts of transit service on tourist destinations or places with recreational activities. The literature leaves little doubt that public transit generates economic benefits for places with tourist attractions and recreational activities through job creation and tax revenue generation. However, efforts to estimate those benefits have been sporadic at best. This paper bridges a gap in the existing knowledge base by presenting results from a study that estimated transit’s economic impacts on the shore communities served by the North Jersey Coast Line (NJCL), a commuter rail line operated by New Jersey Transit.

NJCL operates between New York Penn Station in Manhattan, New York City, and Bay Head Station in Ocean County, New Jersey, with an average weekday ridership of approximately 22,000. Although the line is used throughout the year by commuters who travel to and from work on weekdays, it is heavily used on summer weekends by visitors who travel to the New Jersey Shore for recreational purposes. The line’s weekend (Saturday and Sunday combined) ridership is 85% of its average weekday ridership during the summer months, while its weekend ridership is only 63% during the rest of the year.

Although NJCL provides year-round service to a large area that includes Manhattan in New York City and several New Jersey counties, the focus of this study was on summer weekend service to the shore communities in Monmouth and Ocean Counties, New Jersey. The term “summer weekend” in this study referred to the 15 weekends between Memorial Day (May 27, 2013) and Labor Day (September 2, 2013). To estimate the economic impacts of the NJCL summer weekend service on the study area, a regional input–output (I-O) model was used. The specific model, the R/ECON I-O software program, was developed by the Rutgers Economic Research Service of Rutgers University, New Brunswick, New Jersey. The model’s estimates of interregional trade by sector have their basis in those conceived by the former Regional Science Research Institute. The R/ECON I-O model generates economic measures in the form of jobs, earnings, net business income (output), gross domestic product (GDP), and tax revenues for specific events, projects, or programs.

The inputs to the I-O model in this study consisted of industry-specific expenditures by NJCL riders in the shore area communities. Data on the riders’ expenditures were obtained through an onboard survey conducted on 5 days during the summer of 2013. On the basis of day of travel, purpose of travel, and place of origin of the riders, the economic impacts of their spending were estimated.

Although modeling efforts similar to the one in this study are often undertaken to evaluate the merits of various types of infrastructure projects, the objective of this study was only to estimate the benefits from expenditures by NJCL weekend riders in the shore area. Estimates of economic benefits from expenditures in as many as 10 rider categories are provided in this paper. The estimates for these categories can be aggregated to obtain the estimates for broader rider categories.

RELEVANT LITERATURE

Over the years, a number of TCRP reports have claimed that public transit generates economic benefits to local communities (1–4). A TCRP-sponsored study by Weisbrod and Reno also made claims...
about the overall economic benefits to communities from public transit (5). These studies emphasized that public transit generated economic benefits to communities through improvements in access to businesses, increases in demand for regional goods and services, and through the promotion of tourism. TCRP Report 78 emphasized the role of public transit in the development of tourism and noted that transit’s contribution was special, because tourism was like an export industry that brought in money from other regions to local economies (3). Litman made similar claims and emphasized the importance of transit service for tourism and recreational activities (6). Similarly, Becker and George provided a highly favorable view of rapid rail transit as a means to promote tourism in the United States (7).

Other studies emphasized the importance of public transit to communities dependent on tourism and recreational activities from noneconomic perspectives. For example, Kelly et al. (8) and Kelly and Williams (9) noted that public transit could reduce the number of automobile trips to tourist destinations, lower greenhouse gas emissions, and help keep the natural environment pristine. Those studies concerned regional transit service to tourist attractions. Thrasher et al. emphasized the importance of transit improvements for travel between activities within a recreational community and used the case of Virginia Beach, Virginia (10).

Two studies in the New York–New Jersey area focused on transit access to shore communities known for recreational activities. Heatwole and West examined public transit access to beaches in the New York City area but did not estimate the economic benefits (11). Marchwinski did estimate the economic benefits from public transit service in different parts of New Jersey through the consideration of three commuter rail lines (12). One of these lines was the NJCL, which was the focus of the study presented in this paper. Marchwinski’s study had its basis in onboard surveys, conducted in the mid-1990s, to determine the expenditure amounts and patterns of NJCL riders who visited the shore communities. It provided estimates of jobs created and tax revenues generated from expenditures by NJCL summer weekend riders.

Marchwinski adopted a simple approach through the integration of regional economic data from the New Jersey Department of Travel and Tourism with expenditure data from onboard rider surveys (12). Many other studies estimated the economic impacts of tourism or tourist expenditures through the adoption of more complex methods. The most common approach used in these studies was the I-O approach developed by Leontief (13). For example, Andrew used this approach to estimate economic development benefits from tourism in Cornwall, United Kingdom (14). Frechting and Horváth used it to estimate benefits from tourist expenditures in Washington, D.C. (15). West and Gamage used a variation of the model to estimate benefits from tourism in Victoria, Australia (16). Zhou et al. used it to estimate benefits from tourism in Hawaii (17), and Akkemik used it to estimate economic benefits from tourism in Turkey (18). It is also evident from ACRP Synthesis 7 that the I-O model is a commonly used method to estimate the economic impacts of airports (19).

In sum, the literature review showed that a number of past studies alluded to different types of benefits from public transit, and many specifically mentioned the benefits to tourist destinations from transit service. Nonetheless, only a few of these studies estimated the actual as opposed to the potential benefits. Marchwinski’s study held special significance for this present study, because it assessed the same transit line and estimated economic benefits from survey data (12). However, the literature review showed that, unlike that study, other studies adopted the I-O approach to estimate benefits from tourism. On the basis of the literature review, the current study adopted the survey approach from Marchwinski (12) and the I-O approach used by the other studies (14–18). The model used in the present study was essentially the same as in these older studies but was customized with county-level economic data for New Jersey for the year 2012, the latest year for which detailed economic data were available when the analysis was undertaken.

STUDY AREA

The shore communities visited by NJCL riders for recreational purposes are located along the southern segment of the line. This study focused only on the area served by the section between the Red Bank and Bay Head Stations in New Jersey (Figure 1). Although Bay Head is the southernmost station on the line, places that are 15 to 20 mi south of the station can be considered within the line’s catchment area, because residents of those areas use the line to commute to New York City and northern New Jersey. Recreational visitors often travel to those places from NJCL stations through other travel modes.

Many communities served by the southern section of the NJCL depend heavily on beaches and other tourist attractions during the summer months. According to Census Transportation Planning Products data derived from the 2006–2010 American Community Survey, the study area contained 229,290 jobs, which accounted for 5.9% of all jobs in New Jersey (20). However, because of its recreational activities, the study area contained 7.7% of the state’s jobs for the industry type defined as “Arts, entertainment, recreation, accommodation and food services.” Jobs in this particular industry type constituted 10.3% of all jobs in the study area, whereas such jobs constituted only 7.7% of all jobs in the rest of New Jersey.

Because the shore communities served by the NJCL are only 60 to 70 mi away from New York City and the densely populated parts of northern New Jersey, many visitors come from those areas for weekend trips. The line is particularly attractive to Manhattan residents, because they can take a one-seat ride from New York’s Penn Station to the Long Branch Station and continue further south to Bay Head after a transfer (12, 21).

Two major highways, the Garden State Parkway and US-9, also provide access to the shore area from New York City and the densely populated urban areas in northern New Jersey. However, because these highways are highly congested during the summer weekends, NJCL often is favored by visitors. The low automobile ownership rate among the residents of New York City and the dense urban centers of northern New Jersey (e.g., Newark, Jersey City) also contributes to the popularity of NJCL (21).

DATA COLLECTION

An onboard rider survey was the primary data source for the estimation of economic benefits to the shore communities served by NJCL. The survey was conducted on two Saturdays, two Sundays, and one Monday during the summer of 2013. The Saturday and Sunday surveys were daylong surveys; the Monday survey was conducted only in the morning. The Monday morning survey was conducted to account for the recreational visitors who left during that period after they had spent the weekend in the shore area.

The survey questionnaire was distributed on board inbound trains between the Bay Head and Red Bank stations. It was distributed only on inbound trains because the intent was to obtain expenditure estimates from visitors during their return journey from the shore area.
To conduct the survey on board trains headed in the opposite direction could have increased the number of respondents. However, a decision was made not to conduct surveys on trains headed to the shore areas, because the expenditure estimates of the riders would have been speculative.

All passengers who traveled by inbound NJCL trains between the Bay Head and Red Bank stations were handed the survey instrument unless they refused to accept. A completed survey was returned by 2,241 NJCL riders, which resulted in a response rate of approximately 26%.

In addition to a pivotal question on itemized spending with respect to various types of expenditures in the shore area, the survey included a number of other questions. Those questions pertained to boarding station, time of boarding, destination station, final destination, trip purpose, number of persons in group, number of days spent in the shore area, and demographic characteristics.

The data collection effort also included two focus groups that involved NJCL summer riders. There were 19 NJCL users who participated in the focus groups. The primary objective of the first focus group was to pretest the onboard survey questionnaire. The objective of the second group was to verify some of the qualitative information obtained through the survey. Both focus groups provided additional in-depth information about the people who used the NJCL summer service, their motivation to use the service, and the issues they encountered while they used the service.

The final data collection task was to count the boarding and the alighting NJCL riders at 13 stations within the study area. Daylong counts of boarding and alighting passengers were undertaken at the NJCL stations between Red Bank and Bay Head on two Saturdays and two Sundays in the summer of 2013. In addition, passengers were counted at the 13 stations on one Monday morning. This task was necessary to convert the surveyed respondents to total riders through the integration of their boarding and alighting station information with the station counts of riders. For the purpose of this conversion, a weight variable was first created for weekends, and another weight variable was subsequently created for all summer weekends on the basis of actual ridership data from New Jersey Transit.

NJCL WEEKEND RIDERS

The economic impacts of expenditures by several groups of riders are described in the next section. Although it might be desirable to present the characteristics of each group separately, given space...
ECONOMIC IMPACT ESTIMATION

Consistent with several studies on the economic impacts of tourism, an I-O model was used to estimate the economic impacts of the NJCL summer weekend riders in the study area (14–18). The technical details of the specific model used in this study, the R/ECON I-O model, were described in two studies (22, 23). The model has been used for economic impact estimation in a large number of studies sponsored by various agencies in New Jersey and beyond (24–26). For the current study, the model was updated with the most recent county-level data for New Jersey.

The R/ECON I-O model is fundamentally similar to the Regional Input–Output Modeling System and Impact Analysis for Planning model, described in the ACRP Synthesis 7 (19). The R/ECON I-O model was used in this study for two reasons. First, members of the research team helped to create the modeling system and used it for a large number of projects. Second, it is one of the most highly documented regional I-O modeling systems.

The basic underpinning of the I-O approach is that an initial investment leads to additional investments, those secondary investments lead to further investments, and so forth, through a multiplier effect. The R/ECON I-O model calculates four traditional multipliers: output, employment, earnings, and GDP. A traditional multiplier is defined as the ratio of total local effects generated to direct local effects in the same units of economic measure. The R/ECON I-O model also generates return-on-investment multipliers, defined as the ratio between a total change in the economy and the initial expenditure or investment required to bring about that change. Such measures, often described in the economics literature as household–employment multipliers or income–retention coefficients, are automatically calculated by the R/ECON I-O model. In this paper, return-on-investment multipliers are expressed as return per $1 million dollars of initial expenditure.

Model Inputs

The inputs for the R/ECON I-O model in this study were the itemized expenditures of the NJCL summer weekend riders in the study area. These inputs are shown in Table 1. The expenditure figures shown in the table are the estimated totals for the 15 weekends between Memorial Day and Labor Day of 2013. The 15-week totals were obtained by integrating the expenditure data from the survey with actual ridership data for the 15 weekends. Although the survey respondents also provided expenditure amounts for various refined categories (e.g., gambling, taxi fare) the survey data had to be collapsed into broader categories so that they could be used as model inputs. The expenditures on hotels and motels, food services and drinking places, and amusement were obtained directly from the survey responses. However, various other expenditures (e.g., grocery store items, souvenirs) had to be divided into the retail and wholesale categories to meet the model’s requirements. The discounting of retail sales had to be accounted for so that such sales did not include the value of goods on shelves. The value of wholesale services had to be accounted for so that such sales did not include the value of goods on shelves. Consistent with several studies on the economic impacts of tourism, an I-O model was used to estimate the economic impacts of the NJCL summer weekend riders in the study area (14–18).
TABLE 1 Spending by NJCL Summer Weekend Riders in Study Area

<table>
<thead>
<tr>
<th>Rider Classification</th>
<th>Hotels and Motels ($)</th>
<th>Food Services and Drinking Places ($)</th>
<th>Retail ($)</th>
<th>Amusement ($)</th>
<th>Wholesale ($)</th>
<th>Transit ($)</th>
<th>Total ($)</th>
<th>Total Spent in New Jersey ($)</th>
<th>Percentage Spent in New Jersey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday and Sunday riders</td>
<td>3,531,886</td>
<td>5,561,620</td>
<td>1,149,487</td>
<td>1,224,248</td>
<td>665,999</td>
<td>141,833</td>
<td>13,790,946</td>
<td>12,275,072</td>
<td>89.01</td>
</tr>
<tr>
<td>Monday recreational riders</td>
<td>438,698</td>
<td>286,241</td>
<td>53,148</td>
<td>78,875</td>
<td>30,768</td>
<td>171</td>
<td>958,194</td>
<td>887,901</td>
<td>92.66</td>
</tr>
<tr>
<td>Riders who would not visit shore in absence of the NJCL</td>
<td>543,972</td>
<td>864,767</td>
<td>107,751</td>
<td>175,051</td>
<td>60,093</td>
<td>17,529</td>
<td>1,930,380</td>
<td>1,769,163</td>
<td>91.65</td>
</tr>
<tr>
<td>Saturday and Sunday riders</td>
<td>196,955</td>
<td>107,394</td>
<td>9,808</td>
<td>13,687</td>
<td>6,144</td>
<td>0</td>
<td>343,151</td>
<td>333,988</td>
<td>97.33</td>
</tr>
<tr>
<td>Monday recreational riders</td>
<td>2,862,712</td>
<td>6,318,676</td>
<td>1,021,720</td>
<td>898,752</td>
<td>594,014</td>
<td>114,352</td>
<td>11,440,906</td>
<td>10,110,227</td>
<td>88.37</td>
</tr>
<tr>
<td>Saturday and Sunday riders</td>
<td>669,174</td>
<td>942,944</td>
<td>127,766</td>
<td>325,496</td>
<td>71,985</td>
<td>27,481</td>
<td>2,350,040</td>
<td>2,164,845</td>
<td>92.12</td>
</tr>
<tr>
<td>In state</td>
<td>195,932</td>
<td>66,194</td>
<td>16,759</td>
<td>35,161</td>
<td>9,886</td>
<td>0</td>
<td>344,588</td>
<td>323,931</td>
<td>91.91</td>
</tr>
<tr>
<td>Out of state</td>
<td>242,766</td>
<td>220,048</td>
<td>36,389</td>
<td>43,714</td>
<td>20,882</td>
<td>171</td>
<td>613,606</td>
<td>563,970</td>
<td>97.66</td>
</tr>
<tr>
<td>Saturday and Sunday recreational riders</td>
<td>473,972</td>
<td>864,767</td>
<td>107,751</td>
<td>175,051</td>
<td>60,093</td>
<td>17,529</td>
<td>1,930,380</td>
<td>1,769,163</td>
<td>91.65</td>
</tr>
<tr>
<td>In state</td>
<td>427,209</td>
<td>484,719</td>
<td>41,035</td>
<td>124,705</td>
<td>23,790</td>
<td>14,795</td>
<td>1,169,454</td>
<td>1,116,364</td>
<td>91.91</td>
</tr>
<tr>
<td>Out of state</td>
<td>2,650,409</td>
<td>3,104,540</td>
<td>626,987</td>
<td>641,012</td>
<td>360,541</td>
<td>27,363</td>
<td>8,260,006</td>
<td>7,410,852</td>
<td>88.72</td>
</tr>
</tbody>
</table>

Note: Values are totals for 15 weeks.

Amounts reflect summation of all expenditures reported by NJCL riders, including value of goods produced in regions outside of New Jersey.

Amounts do not include value of goods produced in regions outside of New Jersey.

The expenditures by the fifth, sixth, seventh, and eighth rider groups showed how much was spent by in-state and out-of-state visitors that used the NJCL. The in-state and out-of-state distinction was important because of the large number of visitors from New York state. Finally, the ninth and tenth rider groups included only those Saturday and Sunday riders who defined their trip purpose to the shore as recreational. The difference in spending by these two groups combined and the first rider group (the first row) was the amount spent by the Saturday and Sunday riders who defined the purpose of their trip to the shore as nonrecreational. Thus workers who went to the shore to work for recreational establishments were not included in the ninth and tenth rider groups.

Table 1 shows that approximately $13.8 million was spent by Saturday and Sunday NJCL riders and another $1 million by riders who were returning on Monday morning after a recreational trip to the shore area in the 15-week summer period. Among the expenditure categories shown in the table, food service and drinking places accounted for the largest share, followed by hotels and motels. Out-of-state visitors spent far more in the shore area than in-state visitors. For example, of the $13.8 million spent by Saturday and Sunday riders, only $2.4 million, or 17%, was spent by in-state visitors. The remainder was spent by out-of-state visitors. The share of in-state visitors was the highest for amusement (27%) and lowest for wholesale and retail (11% for each).

Model Results

The R/ECON I-O model estimates economic outcomes in terms of employment (jobs), output, earnings, state taxes, local taxes, and GDP.
Employment is the count of annualized jobs, a measure of employment at the place of work. The value of this measure depends on the prevailing mix of full- and part-time employment for the industry affected by the economic change. Output is the taxable income of businesses. Earnings include wages, salaries, and supplements to wages and salaries earned by employees in return for contributions to production. State taxes are revenues collected by state governments through personal and corporate income, state property, excise, sales, and other state taxes generated by changes in output or wages or by purchases by visitors to the region. Local taxes are revenues collected by substate governments. They are collected mainly in the form of property taxes on new worker households and businesses but can include income, sales, and other major local taxes in applicable areas. In New Jersey, local taxes include property taxes only. GDP measures regional production in the same way as it measures national output. It is the difference between the value of goods and services purchased as production inputs and the value of goods and services produced.

**Absolute Effects of Rider Spending**

Table 2 shows the absolute amounts of three types of economic impact made by NJCL summer weekend rider spending in the study area. The first set of columns shows the impacts in terms of number of jobs created, the second set shows the impacts in terms of earnings, and the third set shows the impacts in terms of GDP. The rider categories in the table are the same as the categories shown in Table 1. All three sets of columns show the direct, indirect or induced, and total effects of spending. Although the model generated outcomes on several other effects (e.g., business output, taxes) they are not shown in the table because of space limitations. Some of those effects are summarized in Table 3 in the form of return-on-investment multipliers.

A few important observations can be made from the model results. First, the expenditures by the weekend and Monday recreational riders together created 699 summer jobs (or 225 annualized jobs) in the shore area and generated $9.1 million in earnings and $15.5 million in GDP. Second, the spending by those who stated that they would not have made the trip in the absence of the NJCL created 114 summer jobs, and generated $1.5 million in earnings, and $2.5 million in GDP. These impacts or benefits would likely have been lost in the absence of the NJCL service. In the absence of the train, even more benefits might have been forfeited because the 21% respondents that said they would take a bus in the absence of the service did not have access to a bus service comparable to the NJCL in terms of travel time and comfort.

Third, the economic impacts of the spending by the out-of-state visitors were far more significant than the impacts of spending by the in-state visitors. By all measures considered, out-of-state visitors accounted for more than 80% of the economic benefits generated by the spending of NJCL riders in the shore area. This level of expenditure was the result primarily of the large number of visitors from New York City, who were more likely to stay overnight than the New Jersey visitors. A large number of visitors used the NJCL from New York City because it provided greater access to the shore area from Manhattan, the core of the city, than from most parts of northern New Jersey. The city’s subway network also made the other boroughs highly accessible to the Jersey Shore area via New York Penn Station. Visitors from Manhattan could get a one-seat ride from New York Penn Station to Long Branch Station, whereas Newark in Essex County was the only large city in New Jersey with a one-seat

<table>
<thead>
<tr>
<th>Rider Classification</th>
<th>Number of Summer Jobsa</th>
<th>Earnings</th>
<th>GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect or Induced</td>
<td>Total</td>
</tr>
<tr>
<td>Saturday and Sunday riders</td>
<td>592</td>
<td>62</td>
<td>654</td>
</tr>
<tr>
<td>Monday recreational riders</td>
<td>41</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td>Riders who would not visit shore in absence of the NJCL</td>
<td>88</td>
<td>9</td>
<td>97</td>
</tr>
<tr>
<td>Monday recreational riders</td>
<td>15</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Saturday and Sunday riders</td>
<td>106</td>
<td>11</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>In state</td>
<td>486</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Out of state</td>
<td>55</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Out of state</td>
<td>352</td>
<td>37</td>
</tr>
</tbody>
</table>

*aAnnualized number of jobs is approximately 32% of summer jobs.
During the summer months, this spending generated almost $1.1 million in state taxes and $588,000 in local taxes. This research showed that a rail line that predominantly served weekend recreational visitors could also generate a substantial amount of economic benefit by serving weekend recreational visitors. It showed that NJCL summer weekend riders added 185 annualized jobs and more than $9 million in earnings, approximately $1.1 million in state taxes, and almost $600,000 in local taxes. Given the large number of visitors from New York City, more than 80% of the economic benefit to the shore communities accrued from out-of-state visitors. Through the creation of jobs and generation of earnings and tax revenue primarily from out-of-state visitors, the NJCL summer weekend service benefited the shore communities and the New Jersey economy as a whole.

The results of the current study were comparable to the findings in the study by Marchwinski for the same study area that used NJCL survey data from the mid-1990s (12). That study estimated that the NJCL summer weekend riders added 185 annualized jobs and generated $920,000 in state taxes and $390,000 in local taxes. The employment outcome estimated by the current study was somewhat larger. The amounts of state and local taxes estimated by the current study also were larger as a result of the change in the value of dollars between the two studies. However, the estimates of the two studies have to be considered in the same range.

As mentioned at the paper’s outset, this research was meant to provide estimates of economic benefits from spending by current riders rather than to compare NJCL weekend service with some other service. Some riders who used the service to visit the shore area would perhaps have traveled to the area by some other mode if the service did not exist. However, it was difficult to accurately predict from the data collected through this research what proportion would have done so. For example, although only 21% of the survey respondents said that they would not travel to the area in the absence of the NJCL service did not exist. Thus it would be more meaningful to examine how the service could be enhanced to attract additional riders rather than to speculate how people would travel to the area in its absence.

<table>
<thead>
<tr>
<th>Rider Classification</th>
<th>Annualized Number of Jobs</th>
<th>Earnings ($)</th>
<th>State Taxes ($)</th>
<th>Local Taxes ($)</th>
<th>GDP ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday and Sunday riders</td>
<td>15.2</td>
<td>615,273</td>
<td>74,567</td>
<td>39,707</td>
<td>1,045,052</td>
</tr>
<tr>
<td>Monday recreational riders</td>
<td>15.3</td>
<td>657,749</td>
<td>75,278</td>
<td>42,081</td>
<td>1,112,287</td>
</tr>
<tr>
<td>Riders who would not visit shore in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absence of the NJCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday and Sunday riders</td>
<td>16.0</td>
<td>634,680</td>
<td>74,452</td>
<td>42,098</td>
<td>1,072,562</td>
</tr>
<tr>
<td>Monday recreational</td>
<td>16.1</td>
<td>694,338</td>
<td>77,650</td>
<td>45,724</td>
<td>1,170,605</td>
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<tr>
<td>Saturday and Sunday riders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In state</td>
<td>15.9</td>
<td>643,787</td>
<td>73,502</td>
<td>42,151</td>
<td>1,087,303</td>
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<tr>
<td>Out of state</td>
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<td>609,416</td>
<td>74,786</td>
<td>39,389</td>
<td>1,036,373</td>
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<tr>
<td>Monday recreational riders</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>In state</td>
<td>15.0</td>
<td>678,250</td>
<td>76,819</td>
<td>44,648</td>
<td>1,146,117</td>
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<tr>
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<td>15.5</td>
<td>645,029</td>
<td>75,834</td>
<td>42,720</td>
<td>1,091,067</td>
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<tr>
<td>Saturday and Sunday recreational riders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In state</td>
<td>16.5</td>
<td>669,371</td>
<td>75,403</td>
<td>44,190</td>
<td>1,128,106</td>
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<tr>
<td>Out of state</td>
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<td>623,969</td>
<td>75,518</td>
<td>41,479</td>
<td>1,058,179</td>
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</table>

Return-on-Investment Multipliers

Although the model results in Table 2 are insightful, they are somewhat difficult to comprehend because the expenditure amounts for the 10 rider groups differed. For simplification, the economic effects are presented in the form of return-on-investment multipliers in Table 3. In addition to the three types of effects shown in Table 2, state and local taxes generated by rider expenditures are shown in Table 3. As can be seen, the yields per million dollars were similar for the different rider groups because they consumed similar goods and services in the shore area. The total or absolute effects of the expenditures by each group can be obtained by applying the multipliers in Table 3 to the expenditure amounts shown in Table 1. For example, by applying the employment multiplier in the first row of Table 3 (15.2 jobs per $1 million dollars) to the total expenditure in the first row of Table 1 ($13,790,946), the expenditure of that specific group can be estimated to have helped to generate 210 annualized jobs. Similarly, the expenditure by the second group helped to create 15 jobs, which indicated that the core group as a whole helped to generate 225 annualized jobs. By applying the multipliers in a similar fashion, the expenditure by the core group can be estimated to have helped to generate approximately $1.1 million in state taxes and $588,000 in local taxes.

CONCLUSIONS

This research showed that a rail line that predominantly served weekday commuters could also generate a substantial amount of economic benefit by serving weekend recreational visitors. It showed that NJCL weekend riders spent almost $15 million in the shore communities during the summer months. This spending generated almost 700 summer jobs (or 225 annualized jobs), more than $9 million in earnings, approximately $1.1 million in state taxes, and almost $600,000 in local taxes. Given the large number of visitors from New York City, more than 80% of the economic benefit to the shore communities accrued from out-of-state visitors. Through the creation of jobs and generation of earnings and tax revenue primarily from out-of-state visitors, the NJCL summer weekend service benefited the shore communities and the New Jersey economy as a whole.

ACKNOWLEDGMENT

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REFERENCES


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The Standing Committee on Transportation and Economic Development peer-reviewed this paper.