The Economic Impact of Bridgeport Landing:

A Dynamic Analysis

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Bridgeport Landing: A Dynamic Economic Impact Analysis

Executive Summary

Sharpton, Brunson & Co., P.A. has asked the Connecticut Center for Economic Analysis (CCEA) to assess the economic impact of the Bridgeport Landing Project on the Connecticut economy. Bridgeport Landing is an ambitious project that will transform Steele Point in Bridgeport into a vibrant town within a town space. The project spans eleven years and its construction cost approaches $1 billion. Much more important than the construction-related impacts are the multifarious revenue- and tax-generating venues and properties in the project. The Sharpton, Brunson & Co., P.A. "Briefing Book: Bridgeport Landing at Steele Point Bridgeport" and the concept document from Swanke Hayden Connell Architects well describe these venues and properties. For the purposes of our analysis, there are three major contributors to the total impact of Bridgeport Landing. The first is the construction phase that involves demolition, remediation, renovation and new construction. The second is the employment that follows the creation of new work, retail, hotel and living spaces. The third is the sales generated by the marina, hotel, retail properties, retirement center, eating and drinking establishments, the conference and performance center, and parking properties. ***A key concept is how much of the employment and sales are net new to the area.*** Some firms are looking to expand in the area; others will move from where they are to new quarters with or without backfill. Thus, only a fraction of the employment will be new. Similarly for sales: only a fraction of the sales generated in the new venues and properties will be new to the area, because some sales will be displaced from nearby retail, eating and drinking, and hotel establishments. To the extent that Bridgeport Landing attracts more new firms, new sales and new employment, its impact will be greater.

The City of Bridgeport and the State of Connecticut will provide bond issues to help fund the project. In addition, Bridgeport and the state are providing a grant for the project. ***These public expenditures, in terms of debt service, correspondingly reduce state and***

local spending. In the body of the report, we detail all our assumptions regarding sales, employment and other property income.

Key Results

The results reported here represent the total impact of the project over 30 years. This means that they include the direct (construction and facilities employment), indirect (business to business activity) and induced (rounds of spending by induced by the wages earned and spent by the direct and indirect employment) effects of the project. Table A below summarizes the key results for the economic impact of Bridgeport Landing on the Connecticut economy. We must emphasize at this point that there are several important revenue generating activities for which we do not account in this analysis. For example, we do not estimate the construction costs and revenue from the water taxi, downtown trackless trolley, promenade, lighthouse, relocation of O'Rourke House, renovation of Talmadge Brothers Pier and the increased sales that accrue to them, and, to the helicopter landing pad. In addition, we do not account for the amenity value that Bridgeport Landing generates, which in some measure depends on the revenue generated from the above unaccounted activities. ***Given this shortcoming that make these results conservative, the impact on the state's economy is substantial. Note that despite the public investment, the average annual net state and local revenue is positive.***

Table A

Bridgeport Landing Summary Economic Impact Results

	Bridgeport Landing		
Variable	Average	Present Value	Peak Value
Private Non-Farm (Jobs)	4,327	-	8,498
Employment (Jobs)	4,455	-	8,746
GSP (Mil Fixed 2001$)	$470.20	$3,882.47	$993.51
Real Disp Pers Inc (Mil Fixed 2001$)	$389.28	$2,990.34	$965.18
Population (Units)	4,708	-	11,200
Pers Inc (Mil Nom $)	$745	$5,793	$1,778.00
Disp Pers Inc (Mil Nom $)	$584.89	$4,537.96	$1,405.00
Econ Migrants (Units)	299	-	889
Real Disp Pers Inc per Cap (Fixed 2001$)	$7.73	$105.05	$50.41
State Revenues at State Average Rates (Mil 2001$)	$38.29	$318.26	$75.31
Local Revenues at Adjusted State Average Rates (Mil 2001$)	$13.76	$83.46	$38.46
State Expenditures at State Average Rates (Mil 2001$)	$18.42	-$13.30	$96.40
Local Expenditures at Adjusted State Average Rates (Mil 2001$)	$11.24	-$11.97	$54.63
Net State Revenue (Mil 2001$)	$19.86	$331.55	$64.97
Net Local Revenue (Mil 2001$)	$2.52	$95.43	$36.02

The reported numbers appear as average, present value and peak values. Average values are the sum of the variable's (e.g., Gross State Product or GSP) value over the period 2006 to 2035 divided by 30 and represent the average annual change above the baseline forecast for the Connecticut economy. Present values of monetary variables reflect the value today of the revenue stream discounted to the present at each point in the future. We use a discount rate of 6.5%. The peak values represent the highest value attained by the variable in the period 2006-2035. Some variables attain their maximum values in 2035 (the last year of REMI's simulation period). Others attain their maximums in 2026 when the state and local governments retire their bonds. Net state and local revenues attain their peaks in 2006 when the State of Connecticut and Bridgeport reduce their respective spending the most due to the large initial spending reductions that offset large initial outlays.

This project clearly has positive economic benefit to the region and to Connecticut. Given that the economic activity related to the construction and operation of Bridgeport

Landing is highly localized to the Bridgeport area, the results reported here primarily accrue to Bridgeport and its immediate vicinity. We believe these results are conservative given the lack of data for certain revenue generating activities cited above. These activities and venues create an amenity value that is at least as large as the public investment made in them. However, that amount does not capture the true amenity value, because the return from the goods produced (e.g., water taxi, heliport, promenade, lighthouse, historical preservation "fees", if any) is not fully captured by the jurisdiction providing the investment. Furthermore, these results show that the return on the public investment is nevertheless positive.

Introduction

Sharpton, Brunson & Co., P.A. has asked the Connecticut Center for Economic Analysis (CCEA) to assess the economic impact of the Bridgeport Landing Project on the Connecticut economy. Bridgeport Landing is an ambitious project that will transform Steele Point in Bridgeport into a vibrant town within a town space. The project spans eleven years and its construction cost approaches $1 billion. Much more important than the construction-related impacts are the multifarious revenue- and tax-generating venues and properties in the project. These venues and properties are well described elsewhere. For the purposes of our analysis, there are three major contributors to the total impact of Bridgeport Landing. The first is obviously the construction phase that involves demolition, remediation, renovation and new construction. The second is the employment that follows the creation of new work, retail, hotel and living spaces. The third is the sales generated by the marina, hotel, retail properties, retirement center, eating and drinking establishments, the conference and performance center, and parking properties. A key concept is how much of the employment and sales are net new to the area. Some firms are looking to expand in the area; others will move from where they are to new quarters with or without backfill. Thus, only a fraction of the employment will be new. Similarly for sales: only a fraction of the sales generated in the new venues and properties will be new to the area, because some sales will be displaced from nearby retail, eating and drinking, and hotel establishments. To the extent that Bridgeport Landing attracts more new firms, new sales and new employment, its impact will be greater.

The State of Connecticut will bond $110 million and the City of Bridgeport will bond $75 million (TIF bonds) for this project. We assume debt service on these bond issues will reduce government spending over their maturity period correspondingly. Our time frame for this analysis is twenty years, the typical maturity period for bond issues. The project commences in 2006; some employment and sales will ramp up before the entire project is complete in 2017. We assume that employment in the office spaces will be primarily in the miscellaneous professional services sector. Hotel, marina, retail sales

and rentals will drive the economic impact of those properties. A projected one million visitors per year will generate these and other sales in addition to those from new residents.

Modeling Strategy

CCEA uses the REMI model of the Connecticut economy to evaluate impacts. This model is a dynamic representation of the state economy and we can examine in detail the annual impacts of projects and policies as they unfold. The construction phases of Bridgeport Landing span eleven years and the bonds issued mature over twenty, so our time frame for this analysis is 2006 to 2026. We assume that the net new sales to the area are about 10% because the increases come at the expense of lost sales in the vicinity. This number may be conservative and it is possible to model several plausible scenarios. However, we model a conservative scenario described in detail below. The issue for this and alternative scenarios is the paucity of marketing data. The 10% net new sales number we use is based on recent CCEA work. Net new employment may be significantly higher because firms are moving north from Stamford as new firms move into Stamford from New York City. As noted, we assume employment is in the miscellaneous professional services sector.

The construction phases consist of site preparation, including demolition and remediation. Some existing structures will be moved. New infrastructure including water, sewer, electrical and communication, and roads will be built. New buildings include Class A office spaces that contain retail spaces, and, residential buildings and parking structures. There will be bulkhead and marina construction, including the dry stack for boat storage, and a water taxi landing. Specialized structures include a marina clubhouse, a conference center with a performance venue, a lighthouse and a town square plaza. Detailed construction data exists for these components.

Revenue Generation and Employment Assumptions

We assume a square foot of general retail space generates approximately $175 in sales (based on the Newspaper Association of America estimates for advertising budgets) and that only 10% of these are net new because of lost sales elsewhere in the region. This implies that there would be $26,339,990 in new sales if 100% were net new. The office area of 1,616,305 square feet translates to 6,465 miscellaneous professional employees at 250 square feet per worker. Furniture, fixtures and equipment translates to approximately $50 million at about $30 per square foot. We assume 325 square feet per parking space and that 50% will be transient parkers and 50% will be monthly parkers. At $1.00 per hour for transient parking fees and $50 per month for monthly parkers, the total annual parking revenue is $4,576,602. However, we assume that only 70% of parkers will be net new because some visitors and workers will substitute Bridgeport Landing parking for their current parking. Therefore, net new parking revenue should be approximately $3,203,621. These figures are from Pacific Medical Buildings (www.pacificmedicalbuildings.com/parking.html).

We assume the 556 residential units will rent at an average of $2,000 per month yielding $13,344,000 per year. These units will be a net new addition to Bridgeport's housing stock and will be 100% occupied by new residents many of whom will be new employees. We assume the hotel is a 350 room facility (half the size of Adriaen's Landing). The hotel should generate $16,000,000 in sales annually at a 70% occupancy rate. The one million visitors per year generate sales for the conference center and theater, as well as sales in the retail, amusements and recreation, parking, eating and drinking sectors. We assume that 30% of these visitors are net new to the area because there will be some substitution of one visitor activity for another. We assume that half of the net new visitors are from out-of-state and the remainder is recaptured Connecticut visitors who otherwise would take their business elsewhere.

Table 1 below summarizes the input assumptions.

Table 1

Bridgeport Landing Economic Impact Study Assumptions (Annual Estimates)					
Economic Activity	Total Area/Units	Per Unit Assumptions	Total	Percent Net New	Net New Contribution to the Economy
Retail Sales	152,562sf	$175/sf	$26.4 mil.	10%	$2.64 mil.
Class A Office	1,616,305sf	Worker/250sf	6,465 Worker	100%	6,465 Worker
Residential Rental	556 residences	$2,000 per month	$13.344 mil.	100%	$13.344 mil.
Parking Sales	5,171 Spaces	50% Transient ($1 per hour and 50% monthly ($50per month)	$4.577 mil.	70%	$3.204 mil.
Hotel Sales	350 rooms	70% Occupancy	$16 mil.	100%	$16 mil.
Retirement Center	300 units	$50,000 per Unit	$15 mil.	20%	$3 mil.
Visitors	1 million		1 million	30%	300,000 visitors

Annual debt service on the $110 million state bond issue in terms of equal payments over twenty years at 5% interest is $8,826,684; for the municipal TIF bonds, annual debt service is $6,538,842 at 6% (we assume Bridgeport has a lower bond rating than the State of Connecticut). These amounts reduce state and local spending correspondingly over the period. Table 2 summarizes these assumptions.

Table 2

Assumptions Regarding State and Local Bonding

	Total	Fixed Mortgage Interest Rate	Annual Decrease in State Spending	Additional Amount	Maturity Period
State	$110 Million	5%	$8,826,684	$40 Million	20 Years
Local	$75 Million	6%	$6,538,842		20 Years
Note: We assume that Bridgeport has a lower bond rating than the State of CT					

The project divides into four phases in the construction documentation; however, spending is expected to be about $300 million in the first five years, $350 million in the

next two years, and, about $350 million in the final four years. We have divided spending evenly in each of these three periods for the impact analysis. We begin to ramp up permanent employment in 2008 as some spaces come online. We ramp up sales beginning in 2012 as the retail, hotel and parking venues open. We use an exponential (nonlinear) ramp for employment and sales, because we expect that sales and employment will ramp up faster in the near term than towards the end of the study period. Table 3 summarizes the total construction-related costs for the project.

Table 3

Bridgeport Landing Economic Impact Study Total Construction-Related Cost	
Type of Construction	Total Cost (Mil.)
General Construction	$35,543,475.64
New Roads	$8,162,500.00
New Water, sewer, etc.	$2,325,000.00
New Electrical utilities	$13,687,500.00
New conservation incl. Bulkheading, landscaping	$29,739,025.00
Construction:New Office Bldgs	$367,288,890.10
Construction:New Commercial Bldgs ex. Offices	$126,276,817.42
Construction:Non-Bldg facilities	$87,218,567.18
Construction:New Non-farm housing, nec	$115,081,618.04
Furniture, Fixture and Equipment	$95,455,440.00
Architectural and Engineering	$9,880,810.29
Legal Services	$9,880,810.29
Research & Testing	$9,880,810.29
Management & Pub Relations	$41,534,103.03
Insurance	$6,205,049.93
State & Local (fees)	$24,820,199.70
Grand Total	$982,980,616.92
Note: Grand Total may not be equal to the proposed amount of $977,230,506 due to the certain adjustments, estimates and rounding.	

Results

The results reported here represent the total impact of the project over 30 years. This means that they include the direct (construction and facilities employment), indirect (business to business activity) and induced (rounds of spending by induced by the wages earned and spent by the direct and indirect employment) effects of the project. Table 4 below summarizes the key results for the economic impact of Bridgeport Landing on the state economy. We must emphasize at this point that there are several important revenue generating activities for which we do not account in this analysis. For example, we do not estimate the construction costs and revenue from the water taxi, downtown trackless trolley, promenade, lighthouse, relocation of O'Rourke House, renovation of Talmadge Brothers Pier and the increased sales that accrue to them, and, to the helicopter landing pad. In addition, we do not account for the amenity value that Bridgeport Landing generates, which in some measure depends on the revenue generated from the above unaccounted activities. ***Given this shortcoming that make these results conservative, the impact on the state's economy is substantial. Note that despite the public investment, the average annual net state and local revenue is positive.***

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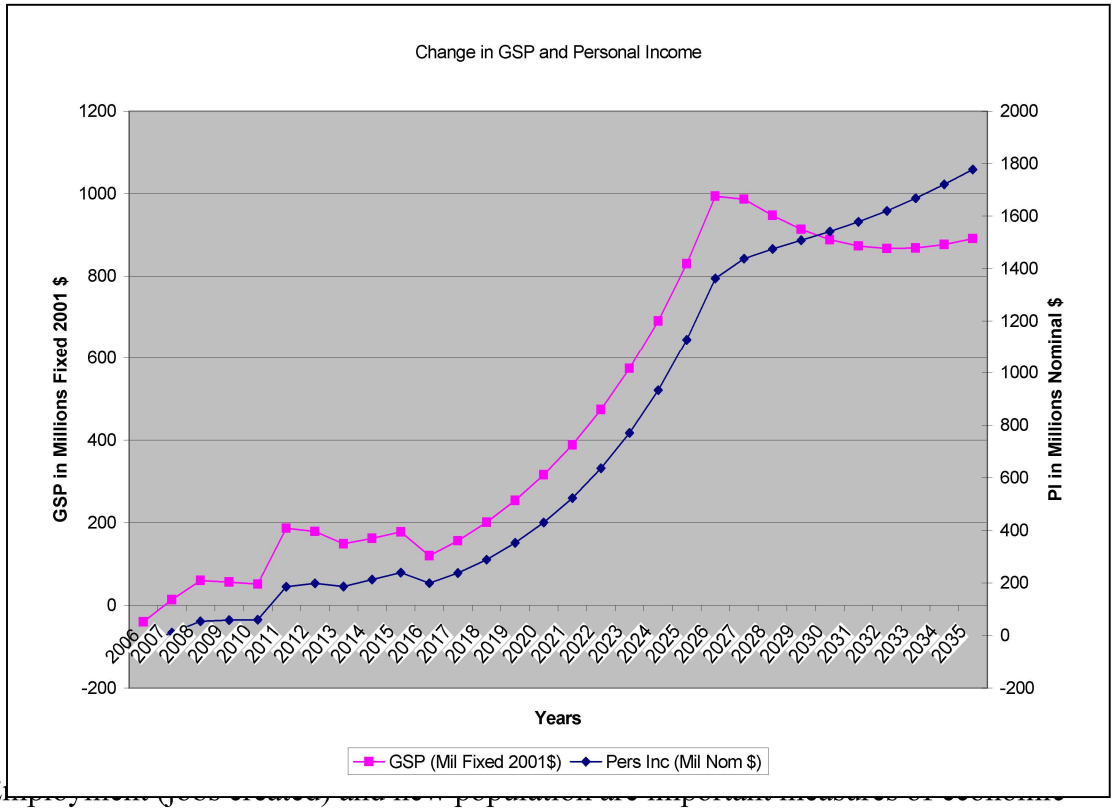
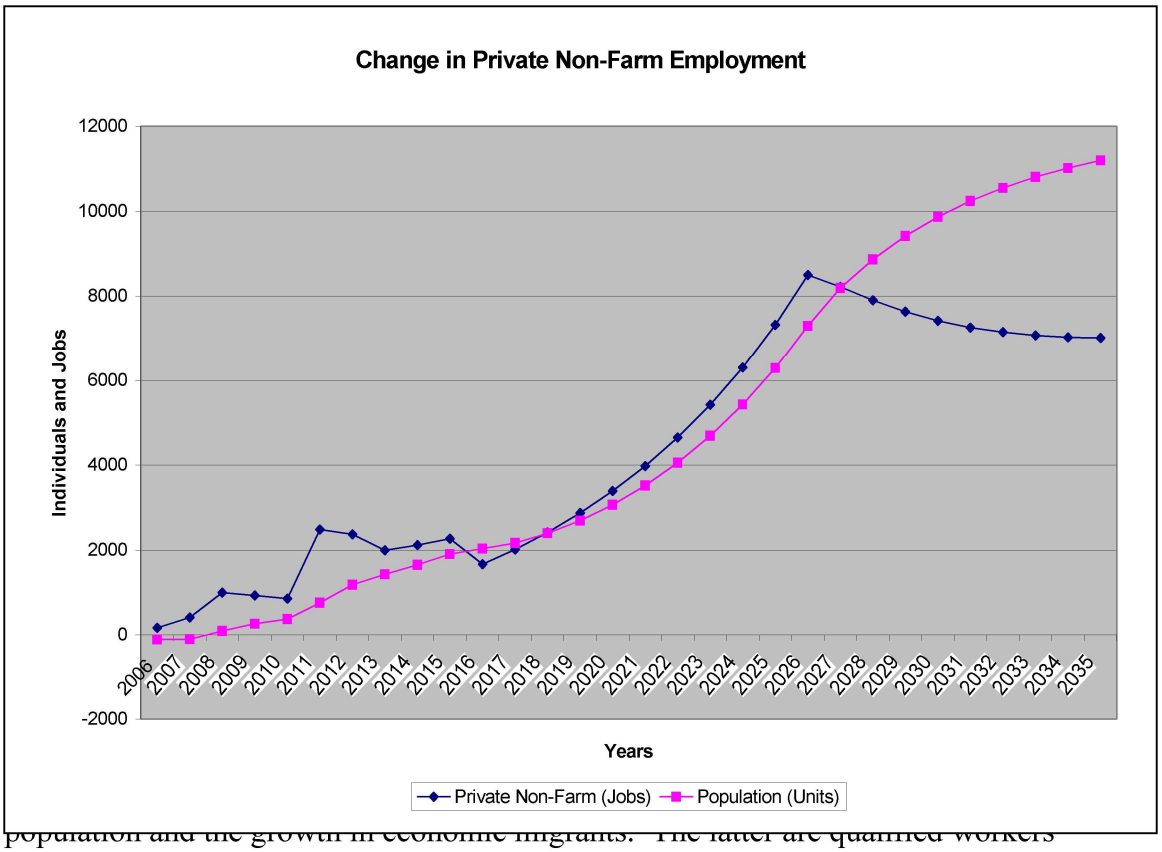
Gross state product (GSP) measures the value of all goods and services produced in the state in a year on a value added basis and is a (size) measure of overall economic activity. Personal income is the aggregate income earned by all state residents and is a measure of overall wellbeing. Chart 1 below shows the time path of GSP and personal income from 2006 through 2035. The initial bumpy part reflects the construction phases, while the smooth ramp up reflects the exponential ramp up of employment and sales of the properties. The annual average increase of GSP above the baseline with no Bridgeport Landing is $470 million. Its peak value attained in 2026 is $993.5 million. Its present value over the 30 year horizon is $3.882 billion. The annual average increase of personal income above the baseline forecast of the Connecticut economy is $745 million; its peak value attained in 2035 is $1.778 billion, and its present value over the period is $5.793 billion. The shape of the graph of personal income suggests that Connecticut has not felt the full effects of Bridgeport Landing even in 2035.

Chart 1



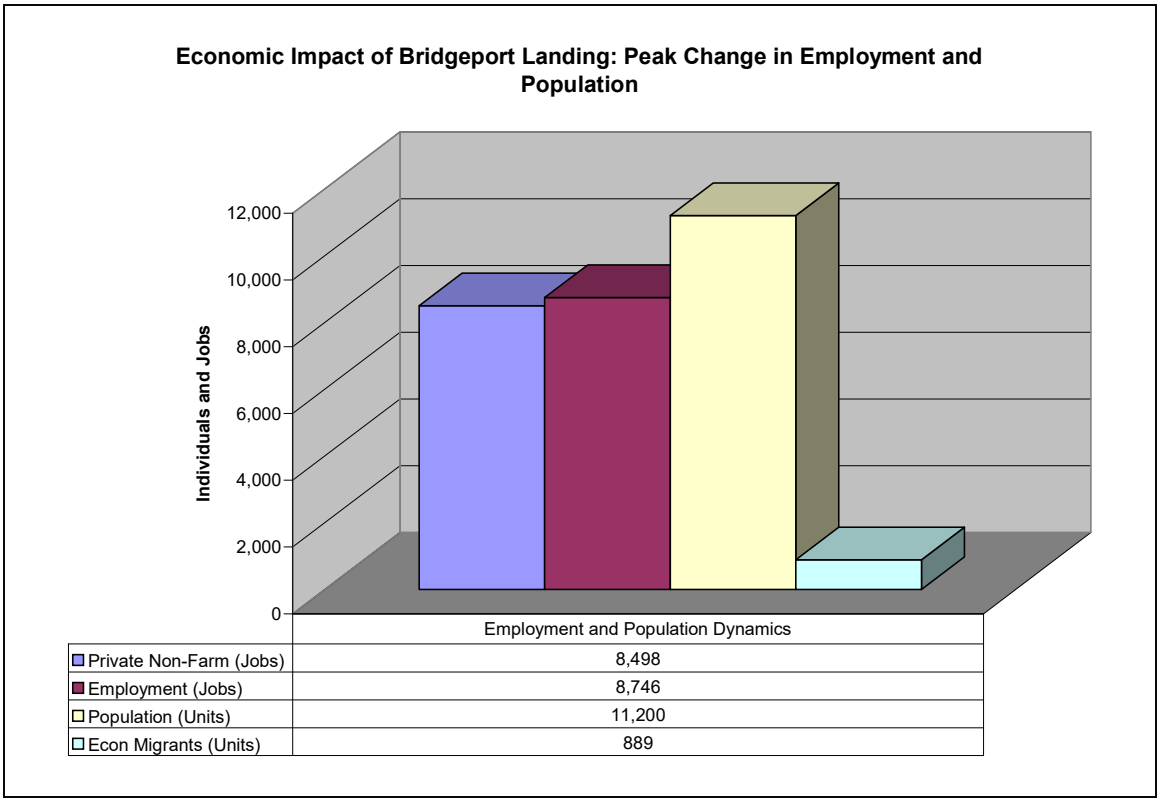
Employment (jobs created) and new population are important measures of economic impact. Chart 2 below shows the time path of these variables. The initial bumpy part the employment changes reflect the initial construction phases. The subsequent smooth increases reflect the exponential ramp up of employment and sales in Bridgeport Landing. New jobs increase on average annually above the baseline forecast by 4,455 jobs. Job growth peaks in 2026 then declines slightly to 7,012 in 2035, its likely long run equilibrium value. New population increases on average annually by 4,708 people; it reaches its peak of 11,200 in 2035. The slope of the population curve at that point suggests there will likely be additional population growth to the long run equilibrium.

Chart 2



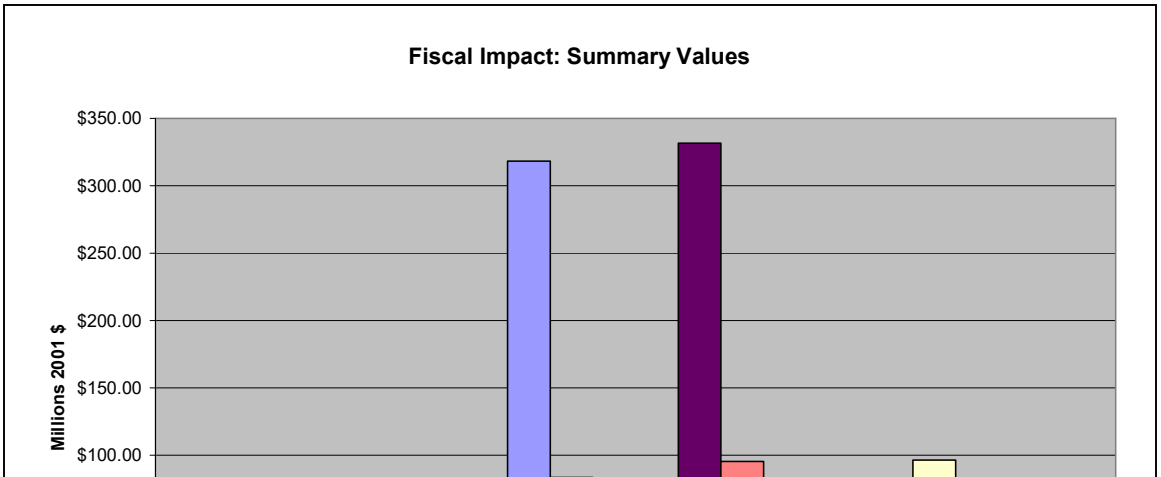
population and the growth in economic migrants. The latter are qualified workers attracted to the area because of new job opportunities.

Chart 3



average rates, state and local expenditures at average rates, and net state and local revenues. These rates reflect historical revenue collections and spending allocations at the state and local levels. We report the variables at their annual average, present and peak values. Notable is the observation that peak net state and local revenue occur in 2006 when the state and local governments pay out their maximum contribution to the project.

Chart 4



Charts 5 and 6 show the time paths of state and local revenues and expenditures respectively. These are the changes from the baseline forecast and therefore represent growth due to the project. The difference between the curves in each graph is the net revenue reported above.

Chart 5

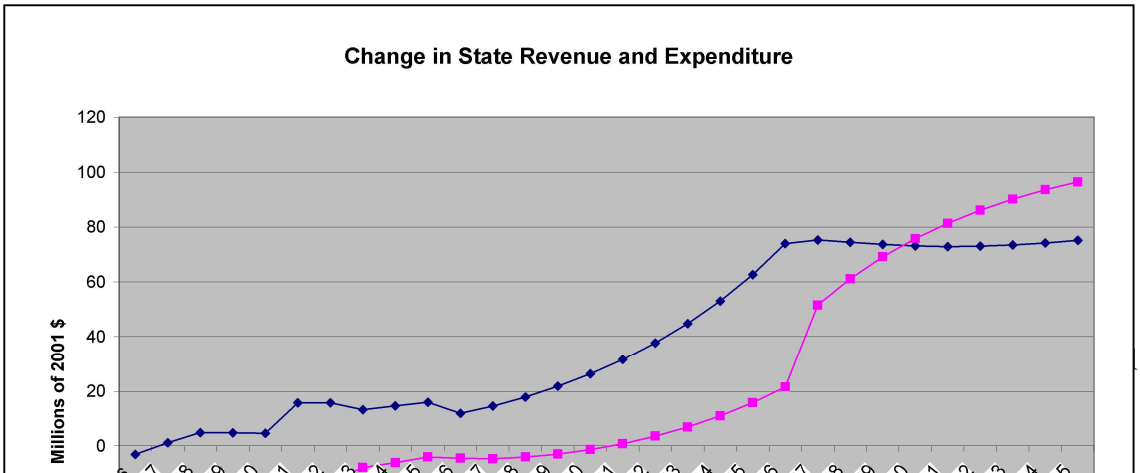
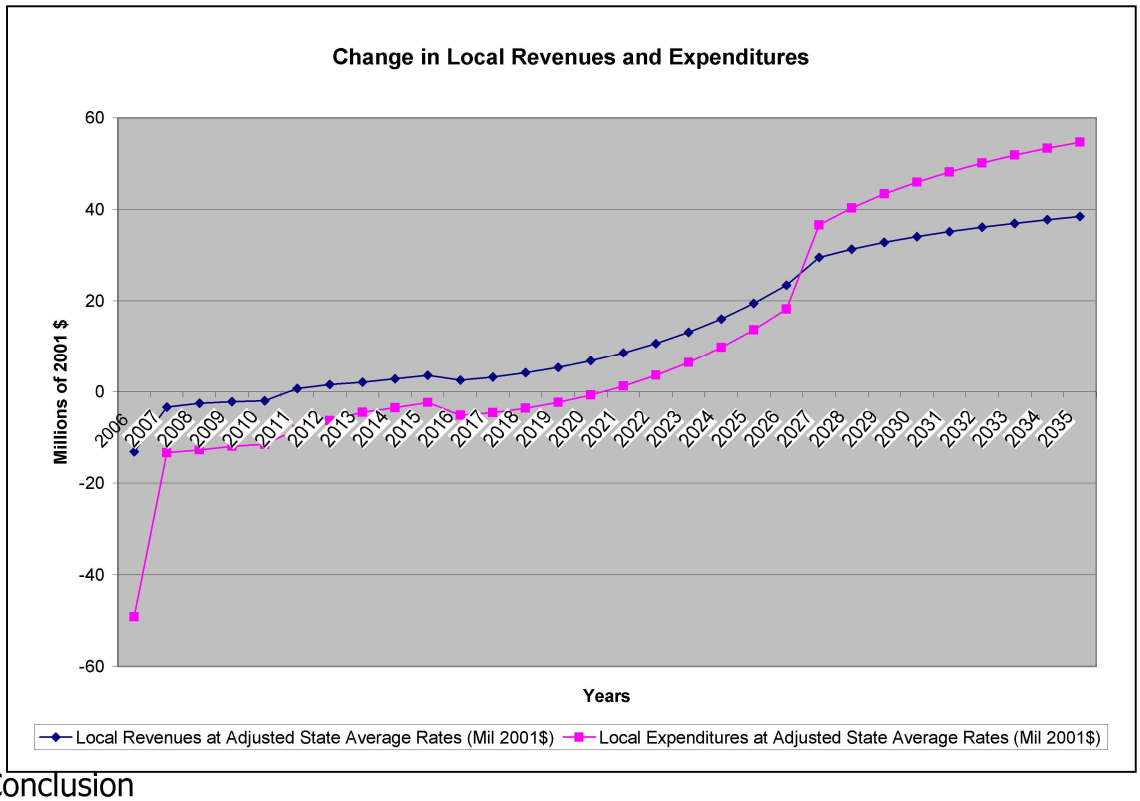


Chart 6



Conclusion

This project clearly has positive economic benefit to the region and to Connecticut. Given that the economic activity related to the construction and operation of Bridgeport Landing is highly localized to the Bridgeport area, the results reported here primarily

accrue to Bridgeport and its immediate vicinity. We believe these results are conservative given the lack of data for certain revenue generating activities cited above. These activities and venues create an amenity value that is at least as large as the public investment made in them. However, that amount does not capture the true amenity value, because the return from the goods produced (e.g., water taxi, heliport, promenade, lighthouse, historical preservation "fees", if any) is not fully captured by the jurisdiction providing the investment. Furthermore, these results show that the return on the public investment is nevertheless positive.

Appendix A

REMI Results

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GSP (Mil Fixed 2001$)	-39.928	14.20627	60.09622	56.37547	51.65876	186.5358	179.1186	149.297	162.1288	178.1497	120.1625	156.2493	201.1486	254.1511	316.1398
Real Disp Pers Inc (Mil Fixed 2001$)	-17.846	5.351955	27.10904	27.70038	27.44456	91.96105	94.81757	86.25888	100.4494	114.0488	94.13289	117.0224	145.7405	180.4129	221.6497
Population (Units)	-106.9	-100.6	94.48	267.1	372.1	756.6	1183	1429	1655	1905	2032	2165	2394	2693	3066
Pers Inc (Mil Nom $)	-32.82	10.74	53.92	58.14	59.63	185.1	198.2	186.3	212.9	239	199.1	237.4	288.5	352.1	429.4
Disp Pers Inc (Mil Nom $)	-25.16	8.026	41.26	44.82	46.17	142.6	153.4	145	165.9	186.5	156.4	186.1	225.8	275.4	335.7
Econ Migrants (Units)	-106.2	8.743	195.7	168.7	98.53	372	406.6	218.8	195	214.3	90.01	93.82	187.6	255.5	324.1
Real Disp Pers Inc per Cap (Fixed 2001$)	-4.20275	2.675978	6.967397	5.064572	3.584348	17.49805	12.38927	5.996307	6.285428	5.82776	-2.69192	0.801471	4.268196	7.963729	11.91346
Private Non-Farm (Jobs)	166.6	413.9	997.1	928.6	858.2	2483	2372	1992	2117	2266	1667	2012	2414	2872	3390
Employment (Jobs)	-662.6	195.3	794.4	738.3	677.5	2363	2281	1925	2066	2232	1588	1943	2361	2838	3381
State Revenues at State Average Rates (Mil 2001$)	-3.083	1.18	4.872	4.849	4.641	15.68	15.7	13.22	14.6	15.94	11.86	14.49	17.82	21.75	26.3
Local Revenues at Adjusted State Average Rates (Mil 2001$)	-13.14	-3.352	-2.527	-2.189	-1.969	0.6839	1.581	2.071	2.821	3.586	2.526	3.202	4.153	5.35	6.813
State Expenditures at State Average Rates (Mil 2001$)	-68.05	-20.26	-20.94	-18.75	-17.26	-18.13	-13.08	-7.9	-6.049	-4.039	-4.463	-4.626	-4.046	-2.953	-1.334
Local Expenditures at Adjusted State Average Rates (Mil 2001$)	-49.16	-13.34	-12.74	-11.97	-11.47	-8.272	-6.316	-4.515	-3.497	-2.364	-5.112	-4.567	-3.604	-2.325	-0.7144
Net State Revenue (Mil 2001$)	64.967	21.44	25.812	23.599	21.901	33.81	28.78	21.12	20.649	19.979	16.323	19.116	21.866	24.703	27.634
Net Local Revenue (Mil 2001$)	36.02	9.988	10.213	9.781	9.501	8.9559	7.897	6.586	6.318	5.95	7.638	7.769	7.757	7.675	7.5274
PCE-Price Index (Fixed 92$)	147.444	150.625	153.897	157.254	160.692	164.232	167.852	171.55	175.326	179.18	183.122	187.177	191.35	195.63	200.015

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
GSP (Mil Fixed 2001$)	388.6776	473.9548	573.6459	690.7837	829.55	993.5102	986.6993	947.0479	913.5535	888.3628	872.7561	866.7437	867.9802	876.3255	890.862
Real Disp Pers Inc (Mil Fixed 2001$)	270.9951	330.157	400.9969	485.8561	587.8008	710.5254	746.5327	764.7617	784.0687	805.7585	830.6466	859.7538	891.8614	927.1766	965.1782
Population (Units)	3517	4055	4688	5429	6292	7297	8192	8867	9415	9865	10240	10550	10810	11020	11200
Pers Inc (Mil Nom $)	522.7	635.6	770.7	933	1128	1362	1438	1475	1508	1541	1578	1620	1668	1721	1778
Disp Pers Inc (Mil Nom $)	408.5	496.7	602.2	729	881.3	1064	1126	1156	1184	1212	1242	1277	1316	1359	1405
Econ Migrants (Units)	395.2	474.4	560.5	655.4	763.8	889.1	761.7	528.9	393.4	291.2	210.2	147.4	97.69	55.51	20.53
Real Disp Pers Inc per Cap (Fixed 2001$)	16.2323	21.14056	26.7391	33.29387	41.14044	50.41265	37.26791	22.71074	9.98854	-1.0291	-10.0122	-17.2409	-23.2339	-28.0023	-31.7533
Private Non-Farm (Jobs)	3979	4651	5420	6303	7322	8498	8220	7901	7634	7420	7260	7149	7075	7031	7012
Employment (Jobs)	3998	4704	5511	6439	7510	8746	8704	8425	8189	8002	7865	7772	7713	7684	7676
State Revenues at State Average Rates (Mil 2001$)	31.55	37.68	44.77	53.01	62.64	73.93	75.31	74.44	73.67	73.09	72.85	73.03	73.47	74.19	75.13
Local Revenues at Adjusted State Average Rates (Mil 2001$)	8.564	10.66	13.13	16.02	19.43	23.41	29.49	31.3	32.8	34.05	35.12	36.09	36.95	37.73	38.46
State Expenditures at State Average Rates (Mil 2001$)	0.8066	3.555	6.917	10.97	15.78	21.47	51.55	61.14	69.12	75.77	81.33	86.1	90.15	93.56	96.4
Local Expenditures at Adjusted State Average Rates (Mil 2001$)	1.247	3.624	6.44	9.757	13.64	18.19	36.61	40.29	43.37	45.95	48.16	50.13	51.85	53.34	54.63
Net State Revenue (Mil 2001$)	30.7434	34.125	37.853	42.04	46.86	52.46	23.76	13.3	4.55	-2.68	-8.48	-13.07	-16.68	-19.37	-21.27
Net Local Revenue (Mil 2001$)	7.317	7.036	6.69	6.263	5.79	5.22	-7.12	-8.99	-10.57	-11.9	-13.04	-14.04	-14.9	-15.61	-16.17
PCE-Price Index (Fixed 92$)	204.508	209.105	213.817	218.638	223.56	228.583	233.681	238.886	244.214	249.667	250.667	251.667	252.667	253.667	254.667

Appendix B

The REMI Model

The Connecticut Economic Model

In 1992, with funding from the Connecticut Department of Economic and Community Development (DECD), the Department of Economics at the University of Connecticut acquired a microcomputer-based economic model of the Connecticut economy from Regional Economic Models, Inc. (REMI). A Massachusetts-based firm with historical ties to the University of Massachusetts, REMI has expertise in regional economic modeling and is a leading supplier and developer of such models. Following its acquisition of the model, the Department of Economics at the University of Connecticut began the formal process of creating the Connecticut Center for Economic Analysis (CCEA).

The REMI model includes all of the major inter-industry linkages among 466 private industries, aggregated into some 49 major industrial sectors. With the addition of farming and three public sectors (state & local government, civilian federal government, and military), there is a total of 53 sectors represented in the model.

At the core of the model are the results of extensive modeling efforts at the U.S. Department of Commerce (DoC). The DoC has developed, and continues to develop, an *input-output model (or I/O model)* for the United States. Modern input-output models are largely the result of groundbreaking research by Nobel laureate Wassily Leontief. They focus on the interrelationships between industries, and provide micro-level detail regarding factor markets (including the labor market), intermediate goods production, as well as final goods production and consumption. Conceptually, the model is constructed in the form of a table, a kind of cross-reference, in which each cell summarizes the sales-purchase relation between industries or sectors.

An example may help to make clear the value of this structure. Suppose that one cell changes; wages for labor rise in one specific sector. The labor cell in that sector would change. Then, the change would flow through the table, affecting inputs and outputs in other industries along the chain of production. At the same time, businesses might substitute capital machinery (automation) or other inputs that appear more cost effective as a result of the change. This would offset, to some extent, the rising cost of labor. Workers may attempt to shift their employment to the sector with higher wages.

That is, all of the elements of the model, just like the economy it represents, relate to all other elements of the model.

The REMI Connecticut model takes the U.S. I/O "table" results and scales them according to traditional regional relationships and current conditions, allowing the relationships to adapt at reasonable rates to changing conditions. Additionally:

- Consumption is determined on an industry-by-industry basis, from real disposable income in a Keynesian fashion, i.e. prices are fixed in the short run and gross domestic product (GDP) is determined entirely by aggregate demand.
- Wage income relates to sector employment and is factored by regional differences.
- Property income depends only on population and its distribution, adjusted for traditional regional differences, not on market conditions or building rates relative to business activity.
- Estimates of transfer payments depend upon unemployment details of the previous period. Moreover, government expenditures are proportional to the size of the population.
- Federal military and civilian employment is exogenous and maintained at a *fixed* share of the corresponding total U.S. values, unless specifically altered in the analysis.
- Migration into and out of the state is estimated and is based on relative wages and the "amenities" of life in Connecticut versus other states.
- "Imports" and "exports" from other states relate to relative prices and production costs in Connecticut versus elsewhere.

Depending on the analysis performed, the nature of the chain of events cascading through the model economy can be as informative for the policymaker as the final aggregate results. Because the model generates such extensive sectoral detail, it is possible for experienced economists in this field to discern the dominant causal linkages involved in the results.