

THE ECONOMIC IMPACTS OF AIRPORTS

REMI WEBINAR
AUGUST 15, 2018

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Airports and the Economy



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- Airports play a vital role in modern infrastructure
- Just as roads and rails provide links, airports also contribute to transportation networks
- The economic significance of an airport:
 - Goes beyond the immediate impacts of jobs and spending
 - The interconnection of regions drives economic growth

Economic Benefits

- Airports increase demand for jobs, goods, and services
 - ▣ Airports create short- and long-term jobs (incl. construction jobs, airline staff, retail positions, security jobs)
 - ▣ Airport operations demand goods and services



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Economic Benefits

- ❑ Airports support tourism
- ❑ Airports make the surrounding area more desirable to live in
- ❑ Airports facilitate business travel
- ❑ Airports facilitate freight shipping

Agenda

- Review REMI case study of Bradley Airport footprint
- Illustrate connectivity benefits of airports with example of investment in airport improvement

Bradley Case Study: Motivation



- ❑ Bradley Airport in CT is the second largest airport in New England
- ❑ Purpose of case study is to illustrate importance of Bradley to CT's economic development
- ❑ Measures economic development through employment, output, and personal income

Bradley Case Study: Methods

- The study assesses Bradley's economic impact through a counterfactual approach
 - ▣ "If Bradley never existed, how would CT economy be different?"
 - ▣ Measured impact is the value that would have been lost from the CT economy without it
- The study evaluates 3 economic scenarios
 - ▣ In all scenarios, Bradley never existed, but each successive scenario accounts for more complex economic factors

Bradley Case Study: Methods



- Airport Operations Scenario
 - Looks at Bradley employees, tourists, and their spending
 - Assumes that without Bradley, no tourists would visit CT but residents would travel away from CT at the same rate as before
 - Similar to a standard airport impact analysis
- Tourism Effect Scenario
 - Builds on Airport Operations Scenario, but accounts for some tourists visiting CT regardless of Bradley and decreased resident travel as a result of no airport
- Airport Contributions Scenario
 - Builds on Tourism Effect Scenario, but accounts for airport's role as an “**economic facilitator**” that saves time and improves accessibility between economic actors in different regions

Economic Facilitator

- Airports shorten the “effective distance” between regions
 - Accessibility Cost
 - Transportation Cost
 - Commuting Cost

Economic Facilitator: Commodity Access

- Air transportation means better supply chain for regional companies
 - ▣ Enables decentralized production
 - ▣ Access to more productive intermediate inputs
 - ▣ Greater sourcing options mean lower, more reliable input prices



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Economic Facilitator: Transportation Cost

- Companies are able to ship finished goods more cost effectively
 - ▣ Decreased cost to deliver finished goods lowers companies' production costs
 - ▣ Lower production costs increase competitiveness and output, lower price



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Economic Facilitator: Commuting Cost

- Decreases in commuting time increase the distance people are willing to travel to get to work
 - ▣ Willingness to commute means companies have access to more workers, better matches raise labor productivity
 - ▣ In the future, air transportation could become affordable enough to connect remote high-skill workers to companies



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Bradley Case Study: Results

- Airport Operations Results:
 - 2004 Bradley impacts reported for 3 different geographic aggregations.
 - CT is only the state of CT
 - CTWMA is CT plus Hampshire and Berkshire counties in MA
 - CTNENY is CT plus the rest of New England and NY

Table 1 – REMI Analysis: Airport Contribution Results Summary

(jobs, millions of US dollars)

	CT	CTWMA	CTNENY
Employment	17,700	20,480	23,300
Output	\$1,772.4	\$1,961.0	\$2,485.7
Personal Income	\$578.1	\$643.3	\$768.4

Bradley Case Study: Results

- Tourism Effect Results:
 - ▣ This scenario evaluated Bradley's economic impacts in 2004, along with its forecasted impacts over the next 20 years
 - Results are reported as 2004 impacts and average impacts over the next 10 and 20 years

Table 2 – REMI Analysis: Tourism Effect Results Summary

(jobs, millions of US dollars)

	2004	10-yr Average	20-yr Average
Employment	11,140	10,839	10,647
Output	\$1,054.6	\$1,214.4	\$1,498.2
Personal Income	\$364.9	\$517.3	\$650.1

Bradley Case Study: Results



- Airport Contribution Results:
 - This scenario evaluated Bradley's economic impacts in 2004, along with its forecasted impacts over the next 20 years
 - Results are reported as 2004 impacts and average impacts over the next 10 and 20 years

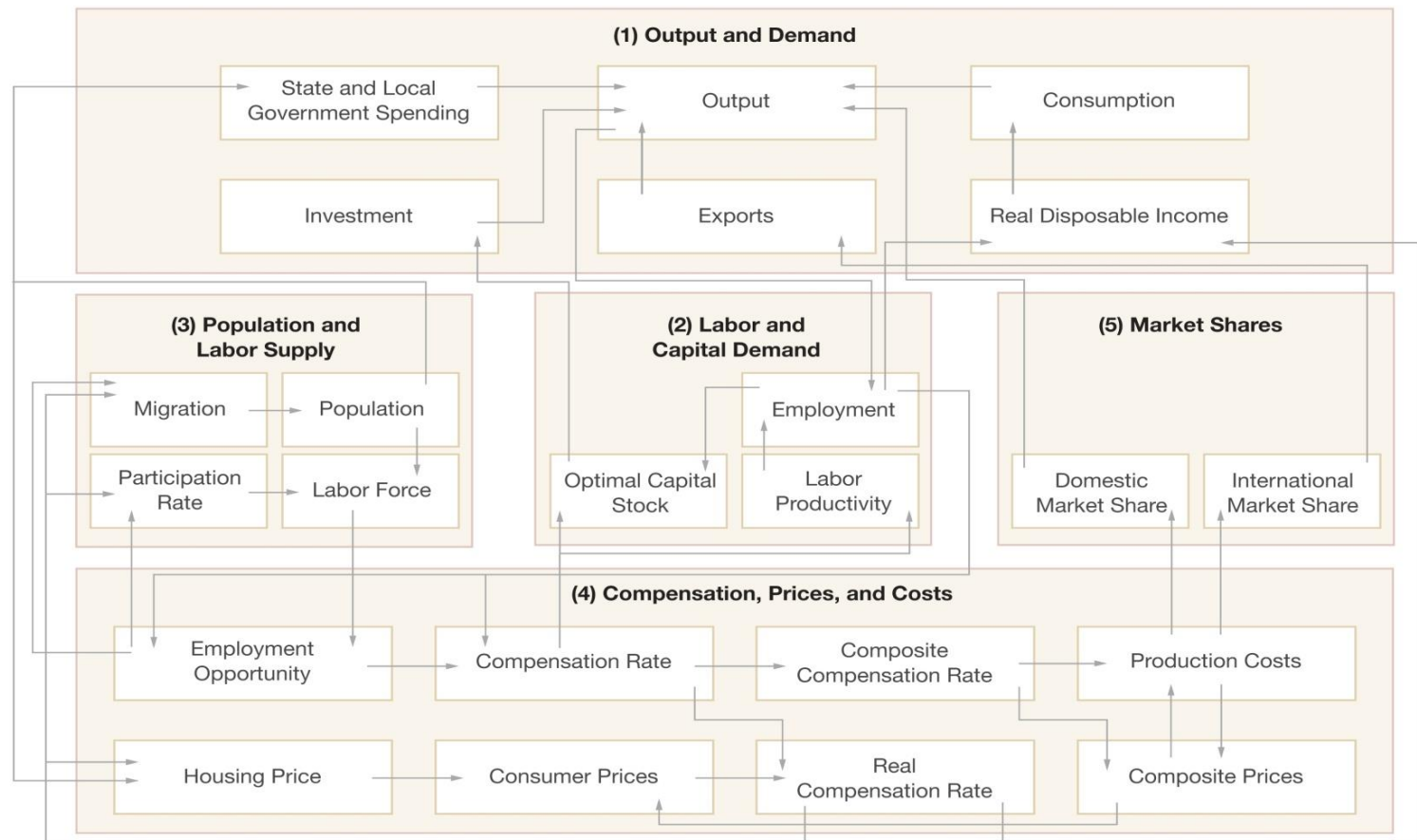
Table 3 – REMI Analysis: Airport Contribution Results Summary			
(jobs, millions of US dollars)			
	2004	10-yr Average	20-yr Average
Employment	18,400	81,500	140,175
Output	\$3,876	\$16,134	\$34,605
Personal Income	\$1,150	\$5,286	\$11,478

Airport Investments

- Improvements to airports
 - ▣ Adding new runways
 - ▣ Renovating and expanding terminals
 - ▣ Modernizing traffic control technology
- Increased capacity raises accessibility by expanding airport capacity
 - ▣ Assume decrease in accessibility cost between CT and rest of U.S. of 2%

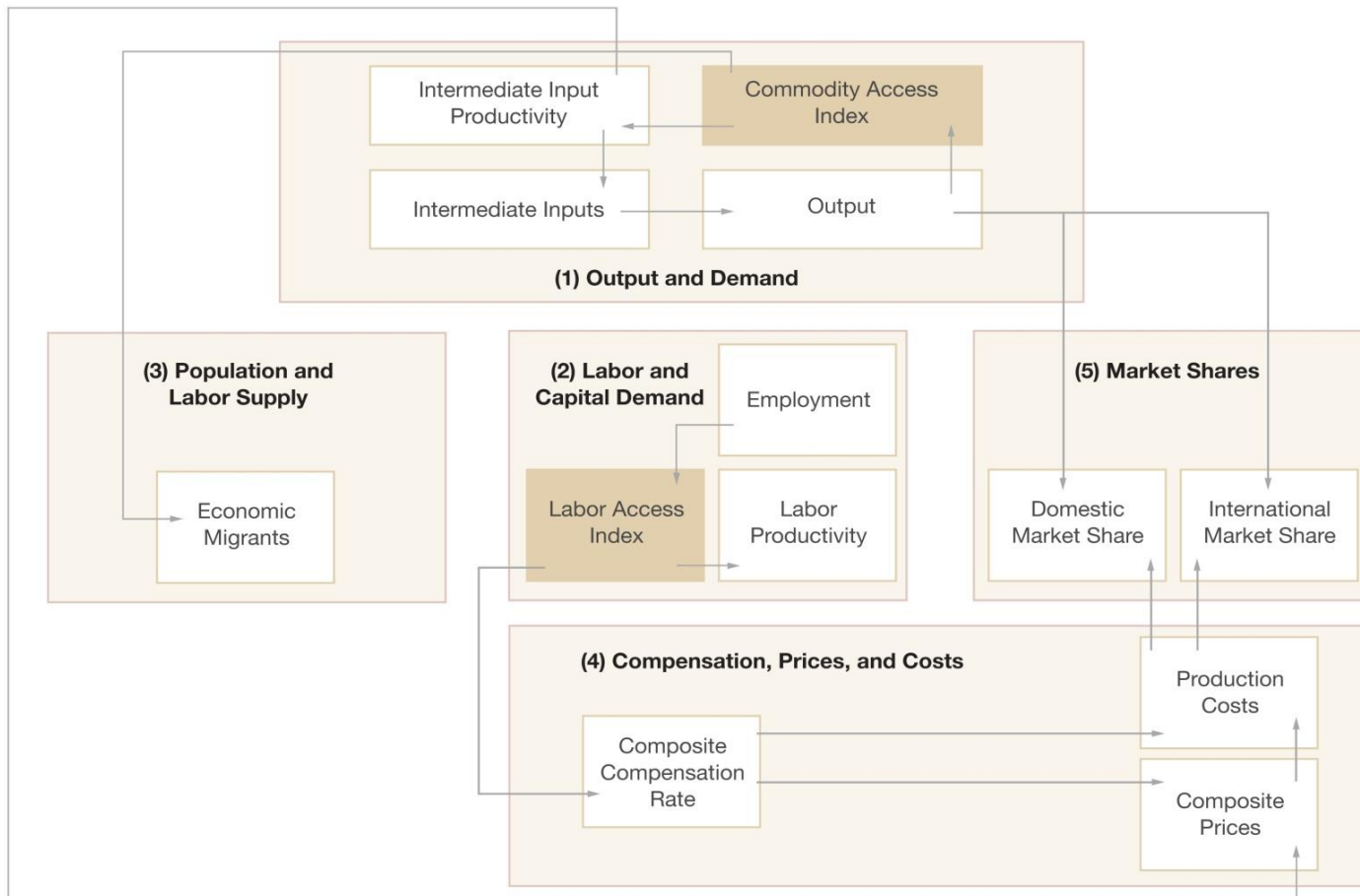
Model Structure

REMI Model Linkages (Excluding Economic Geography Linkages)



New Economic Geography

Economic Geography Linkages



Airport Investments: Inputs



Regional Simulation 1

Save Forecast Import Export Tools

Select Inputs Inputs List Forecast Options Results

Policy Variable Inputs

Active Edit Group

☒ ☐ CT to rest of US (2% decrease in accessibility costs)

Active	View	Category	Detail	Region	Units	2017	2018	2019	2020
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Alaska	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Alabama	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Arkansas	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Arizona	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to California	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Colorado	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to District of Columbia	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Delaware	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Florida	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Georgia	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Hawaii	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Iowa	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Idaho	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Illinois	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Indiana	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Kansas	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Kentucky	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Connecticut to Louisiana	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02

101 policy variables active. Unsaved Changes C:\Users\WilliamK\Documents\Aiport Webinar\TS-Ewin16.70 - 51 State MRUS 51 State MRUS (TS-E) - 51 Region National 70 Sector Model

Airport Investments: Inputs



Regional Simulation 1

Save Forecast Import Export Tools

Select Inputs Inputs List Forecast Options Results

Policy Variable Inputs

Active Edit Group

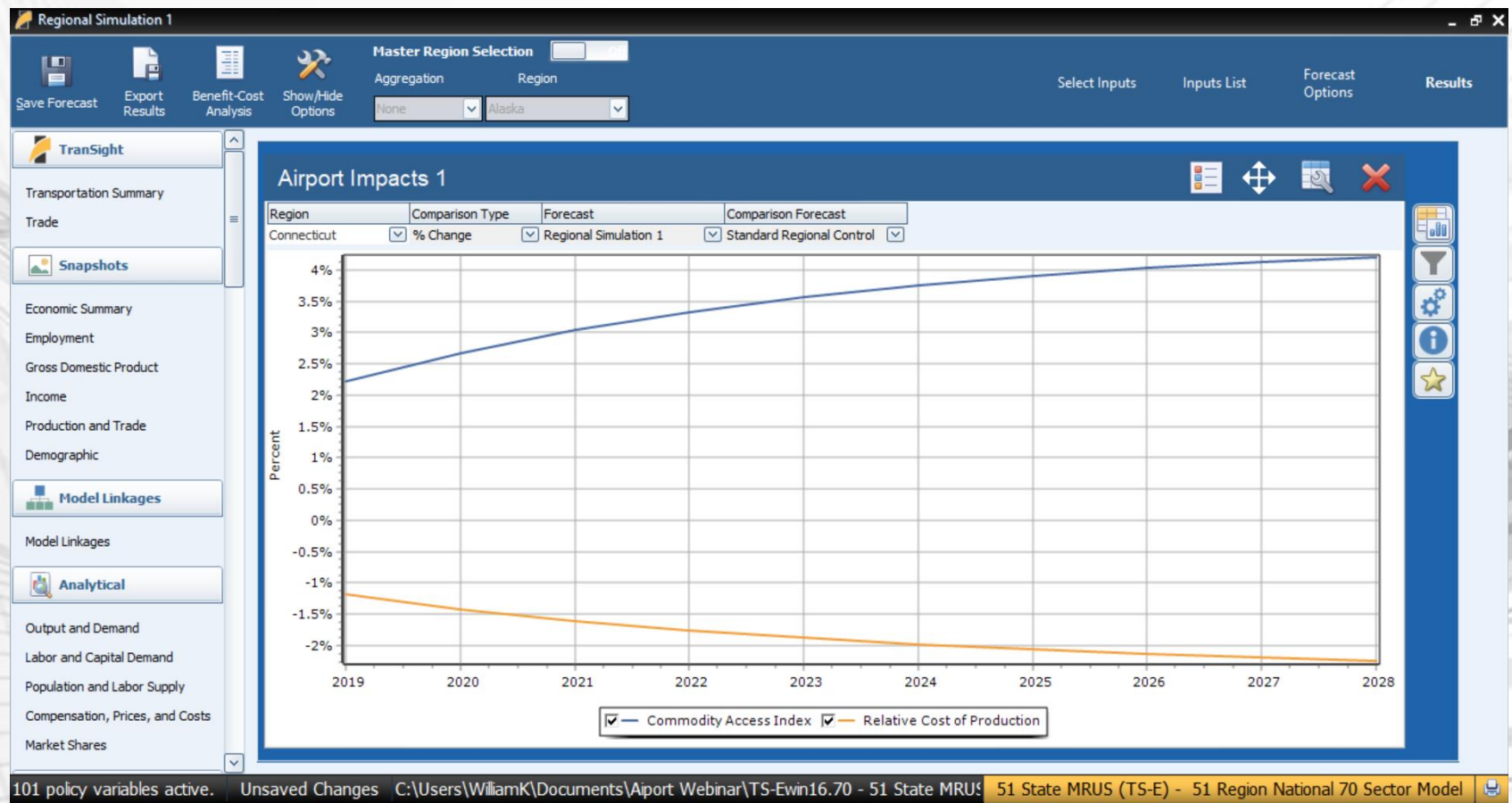
☒ ☒ CT to rest of US (2% decrease in accessibility costs)

☒ ☒ Rest of US (excluding CT) to CT (2% decrease in accessibility costs)

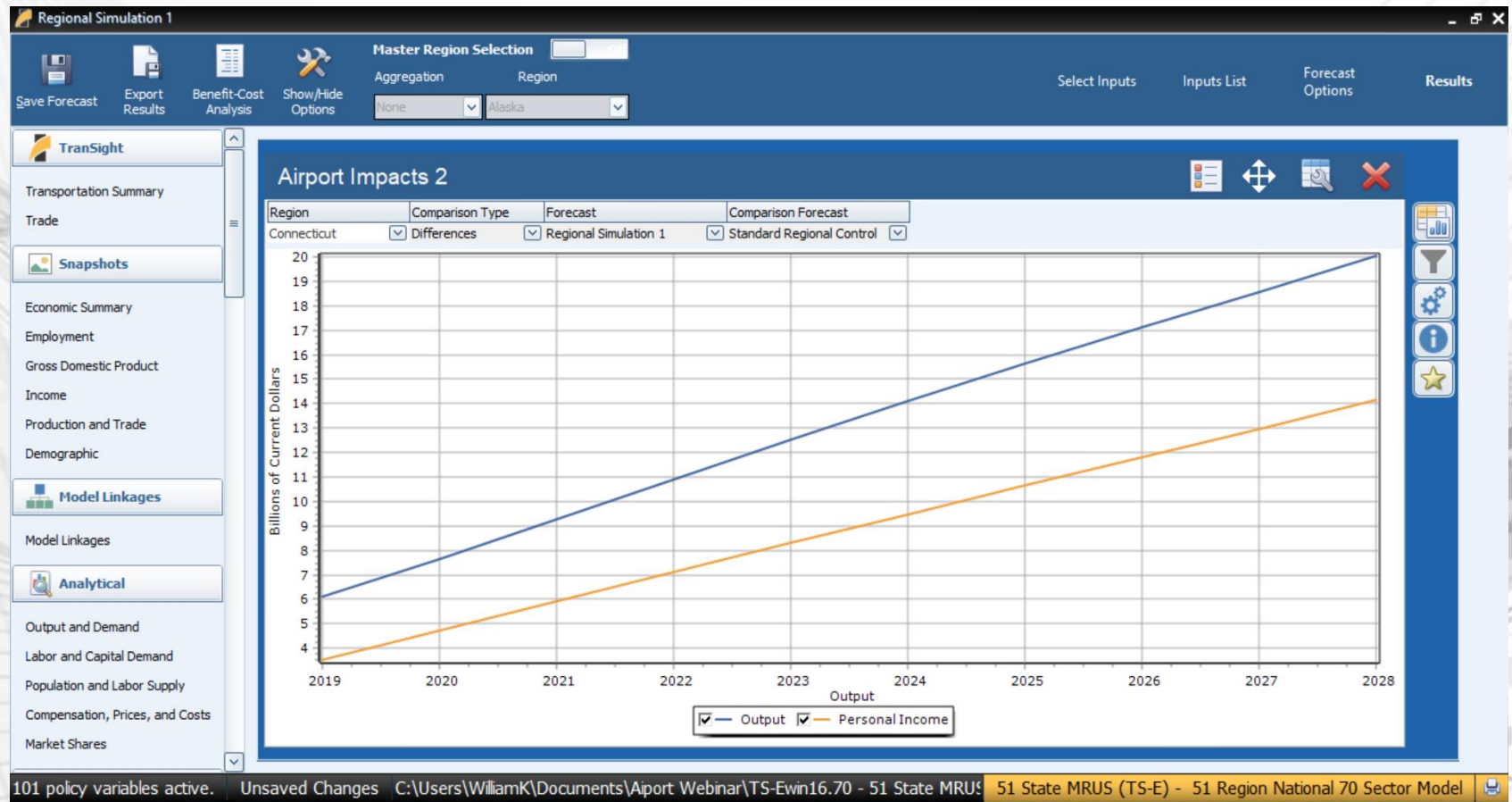
Active	View	Category	Detail	Region	Units	2017	2018	2019	2020
<input checked="" type="checkbox"/>		Accessibility Costs	Alaska to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Alabama to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Arkansas to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Arizona to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	California to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Colorado to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	District of Columbia to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Delaware to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Florida to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Georgia to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Hawaii to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Iowa to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Idaho to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Illinois to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Indiana to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Kansas to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Kentucky to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02
<input checked="" type="checkbox"/>		Accessibility Costs	Louisiana to Connecticut	Interregional	Proportion	-0.02	-0.02	-0.02	-0.02

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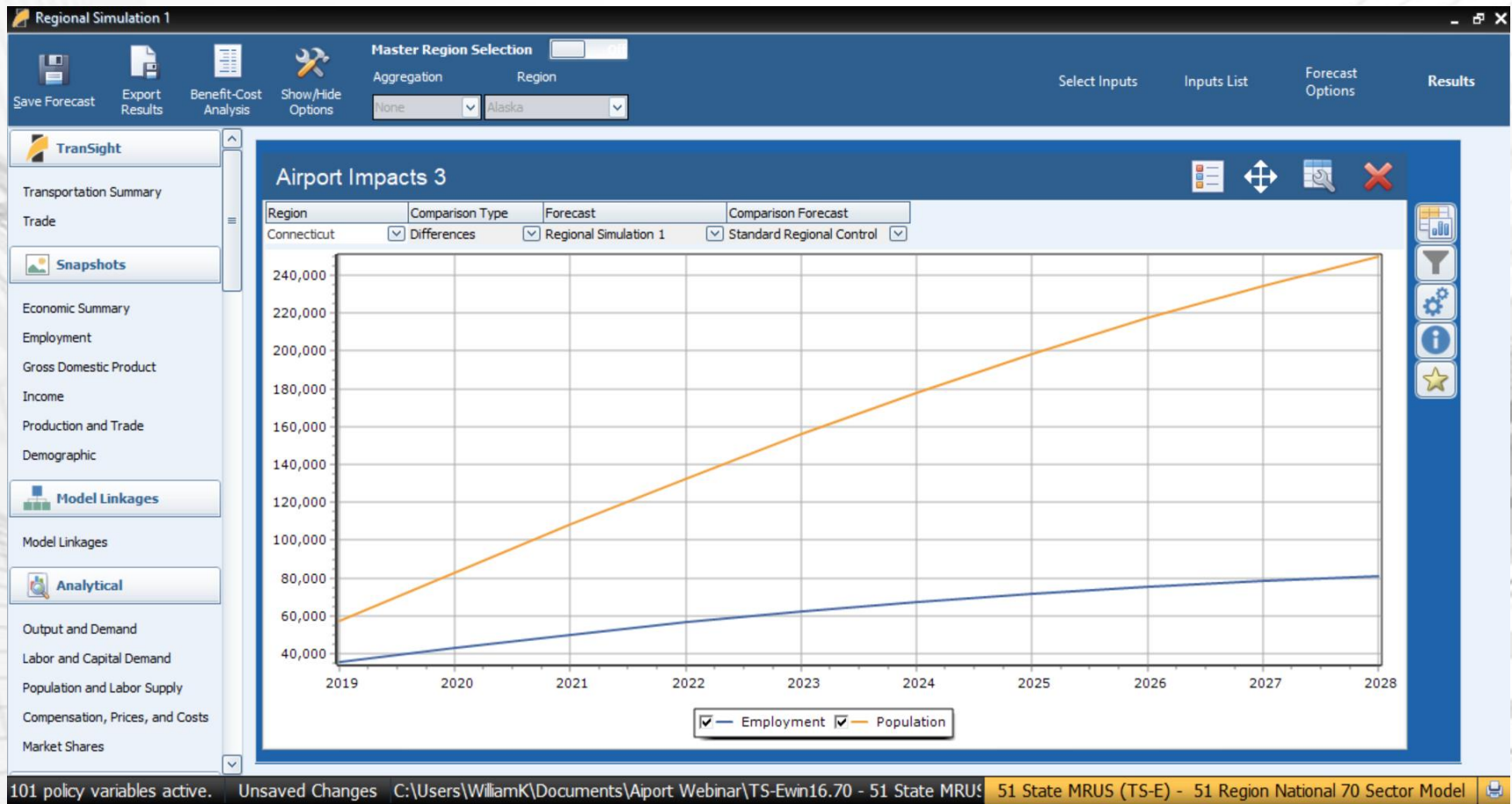
Airport Investments: Results Accessibility & Production Cost



Airport Investments: Results Output & Personal Income



Airport Investments: Results Employment & Population



Conclusions

- Airports are highly interconnected with their surrounding area's economy
 - Several different types of impacts (incl. construction, operations, tourism, regional connectivity)
- In the long-term, airport's main impact comes from being “economic facilitator”
 - They lower travel and shipping costs and make regions more economically accessible to each other
 - This lowers costs and prices, raises competitiveness and output