

# **ROLE OF MACROECONOMIC MODELING:**

A Regional Planning Perspective

REMI Webinar Series

August 29, 2017



# WHAT IS ARC?

- The Atlanta Regional Commission
- 1947 (Metropolitan Planning Commission)
- Intergovernmental Coordination Agency
- “Conduit for innovation to support the growth and development of our local communities”



# ARC OBJECTIVES

## ➤ Purpose

- Produce local long-range demographic, employment and economic forecasts for the 20-county ARC region

## ➤ Intent

- Dedicated to informing public and private policy decisions
- Focused on research based analysis
- Orient stakeholders and decision makers on socio-economic and transportation impacts to our Region

## ➤ Goal

- Continue to lead in regional economic forecasting and policy analysis
- Provide economic development impact plans and assess travel demand changes to the region's transportation network



# MODEL DATA DEVELOPMENT OBJECTIVES

- Conduct potential project prioritization plans
  - Assist in developing a project list
- Perform sensitivity tests of the model and projects
  - Determine the model's effectiveness for further consideration
  - Measure the reasonableness of economic activity and transportation efficiencies of qualified projects
- Develop an economic impact study and analysis report on LPA projects; economic developments; projects selected for the TIP and RTP; and various regional market studies
  - Final documentation of findings and benefits of local and regional impact studies
- Produce small area control totals; SE data for TDM and regional long-range forecasts
- Produce data for inter-departmental work programs and external ARC counterparts

# TRANSIGHT-SPECIFIC FEATURES [OUTPUTS]

- **Benefit-Cost Analysis:**
  - Customizable
  - Use different Discount Rates
  - Evaluate in different years
- **Transportation Summary:**
  - Commodity and labor Access Indices
  - Relative cost factors
- **Domestic Trade:**
  - Flows and Shares
- **All Economic and Demographic Indicators:**
  - All outputs (as well as inputs) from REMI PI+ built into model

# NEED FOR DYNAMIC ECONOMIC ANALYSIS

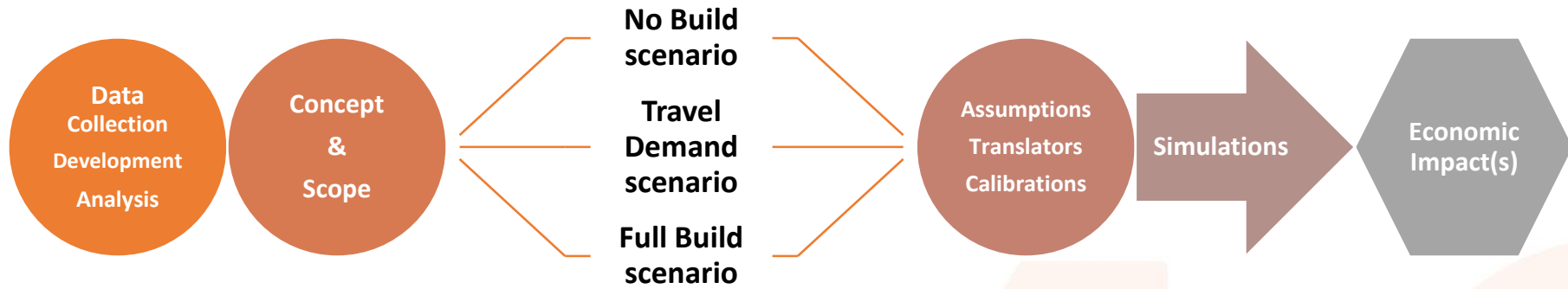
- Economics and demographics of a region are changing over time
  - Projects effect today much differently than the future
- Scoring projects based on travel demand and economics as a complete system
- Every region's travel network and economy is different



# INNOVATIVE APPROACH

- Collaborating and create linkages for model application and compatibility
- New methods for rebranding and financing our transportation system
- Bold decisions demand creative, sophisticated and robust tools capable of supporting these processes
- ARC engagement in performing scenario planning and economic analysis to consult, measure and capture specific impacts to our Region
  - Economic impact analysis to assist and inform benefits to investment endeavors
- Business relocation and major developments in the Region
  - Assess projects of regional impact

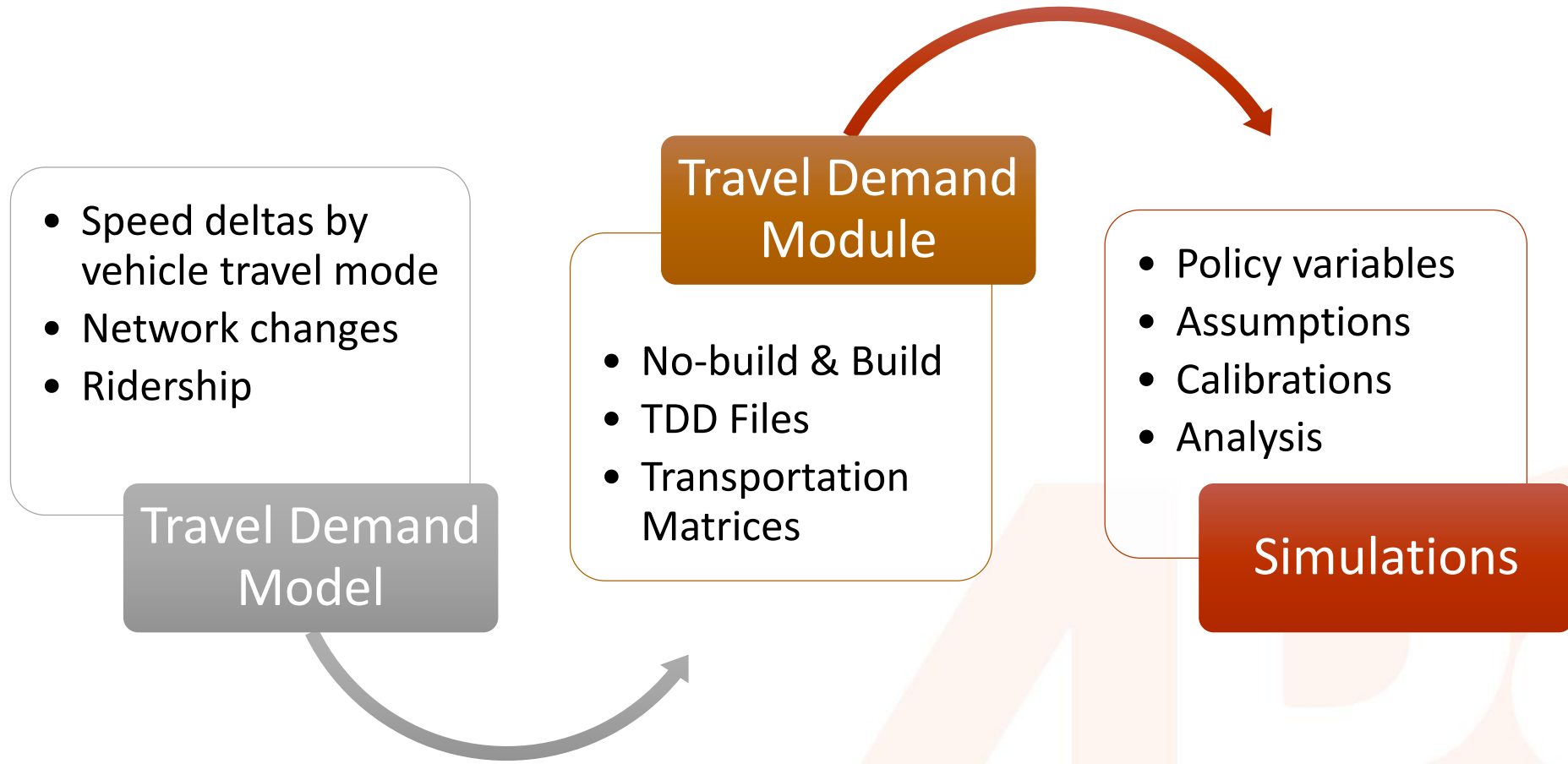
# FRAMEWORK



ARC



# ARC MODEL LINKAGES



# SCENARIO TASKING

## Custom Accessibility

### Policy Variable #1: Transportation Matrix

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- Monetize travel demand data deltas base year 2015 thru 2040 O-D table by mode by region
- Assumed travel changes generated was consistent from base year to project opening

## Project Scope

### Policy Variable #2: Construction detail demand

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- Detailed industry sales / Exogenous production in fixed local dollars
- Assigned to Construction and PDE industry structures assuming best fit to describe design and development of project by NAICS assignment

## Investment

### Policy Variable #3: Revenue spending

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- Revenue collected from sales tax referendum and governmental funding mechanisms
- Spending in fixed local dollars
- Assumed the accrual and spending occurs for a ten-year period

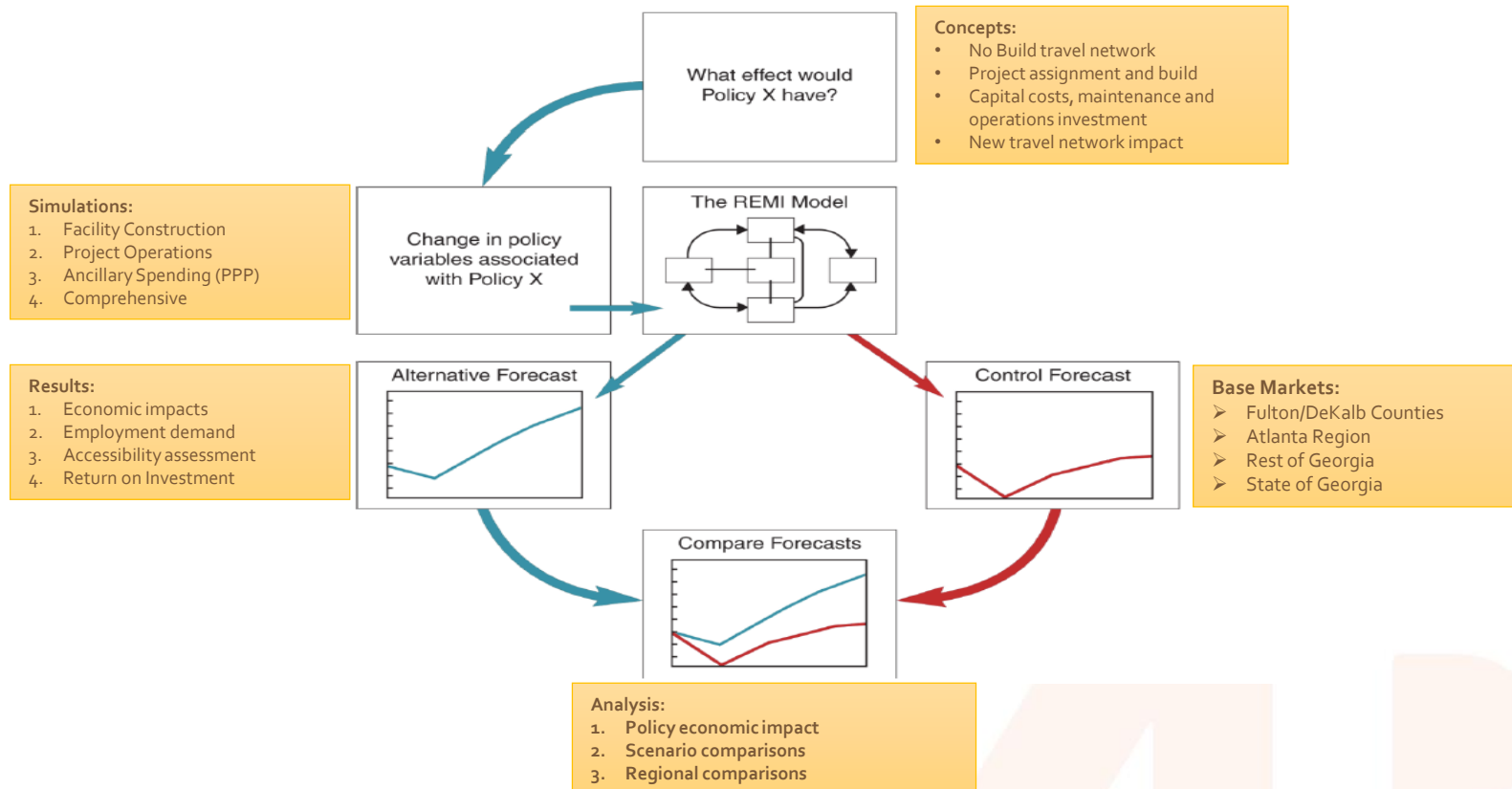
## Economic Impact Assessment

### Policy Variable #4: Return on Investment

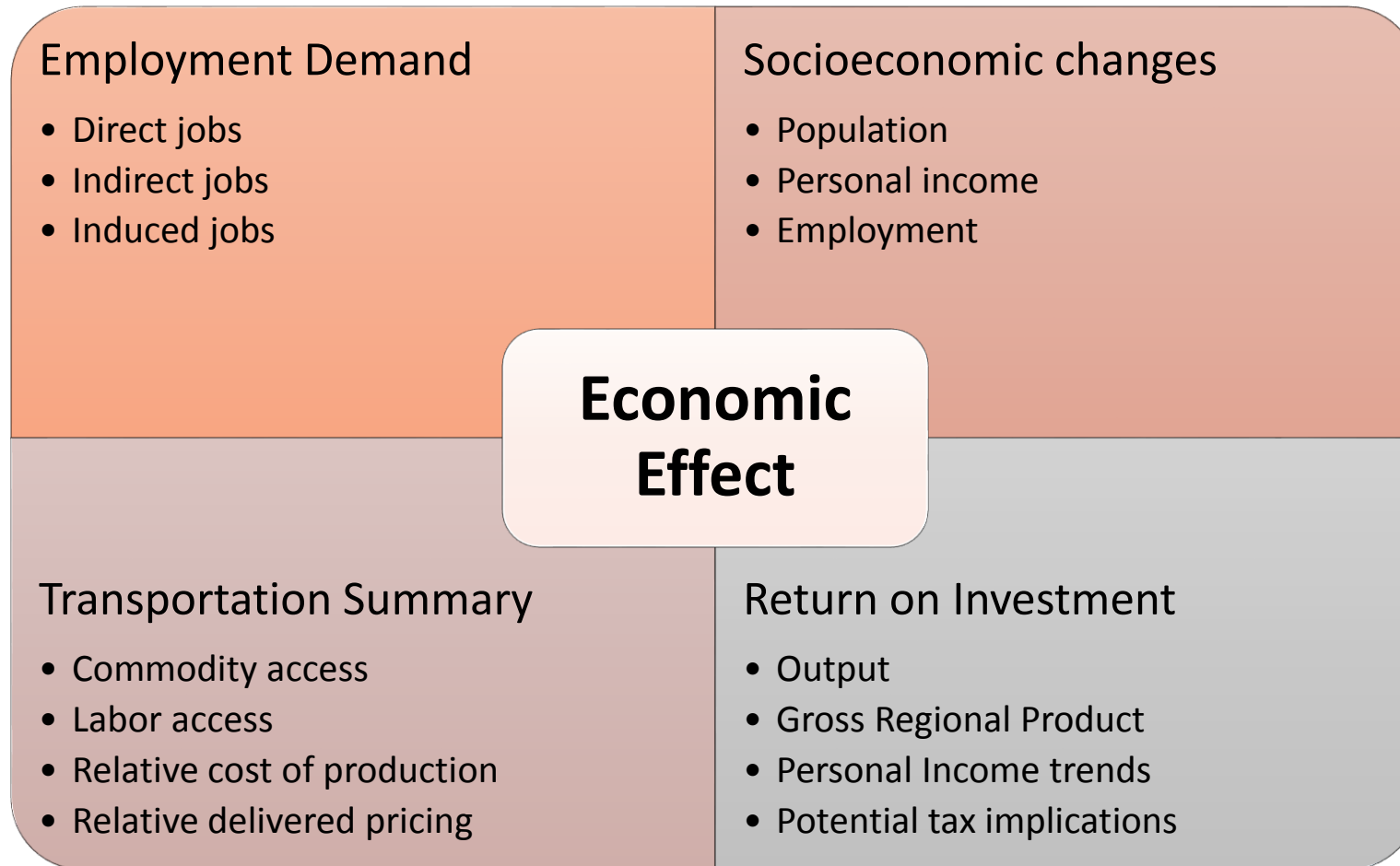
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- Represented in terms of Gross Domestic Product (GDP) in fixed local dollars measuring additional activity between project construction and economic impact horizon
- Project investment stratified to account for pre-design, specialized jobs, right-of-way (ROW) acquisitions, infrastructure costs and other and public improvements and assigned by year of development
- Investment disaggregated and input on an annual basis

# ANALYSIS FRAMEWORK



# OUTCOMES



# MODEL APPLICATIONS

Economic Development	<ul style="list-style-type: none"><li>• Potential population shifts, migration patterns &amp; employment changes on future investment and housing stock; benefit-cost analysis</li></ul>
Transportation	<ul style="list-style-type: none"><li>• Travel demand analysis; transportation improvements impact and mitigation strategies</li></ul>
Environment	<ul style="list-style-type: none"><li>• Environmental Planning Department storm water analysis</li></ul>
Health Care	<ul style="list-style-type: none"><li>• Health Care Reform Policy analysis</li></ul>
Taxation	<ul style="list-style-type: none"><li>• Analysis of the Regional Transportation Referendum</li></ul>
Tourism	<ul style="list-style-type: none"><li>• Visitors and out of region revenue impact/residential burden relief study</li></ul>
Energy	<ul style="list-style-type: none"><li>• Georgia Power economic migration study for projected capital improvement study</li></ul>



# RECAP







# COLLECTIVE STRENGTH

**ARC**

ATLANTA REGIONAL COMMISSION