



Getting Started with



Version 3.6

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# Welcome

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Welcome to REMI TranSight. Your program package includes both regional and national data models. The regional data and model have been calibrated to the region(s) that you specify at purchase, and all packages include a Windows<sup>®</sup> point-and-click interface that makes operating the program easy for all levels of computer users.

## What Is REMI TranSight?

TranSight is the leading tool for evaluating the total economic effects of changes to transportation systems. Grounded in over 20 years of transportation modeling experience, TranSight provides an integrated system for comprehensive evaluation of transportation systems. This approach allows analysts to thoroughly describe the far-reaching economic and operational effects of transportation projects. As with PI<sup>+</sup>, TranSight is used by government agencies, consulting firms, and universities.

Integrating economics with travel demand modeling, TranSight dynamically demonstrates how transportation makes economies competitive. Users can test alternative transportation changes and observe the short and long-term impact on jobs, income, population, and other economic variables. TranSight is a sophisticated modeling tool that integrates travel demand models with the REMI model and is constructed with extensive data on emissions, safety valuation factors, and other data.

In addition to continuously improving the software and pushing the frontier of regional economic modeling, REMI is dedicated to providing quality customer service and support.

# System Requirements

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We recommend that your computer system meet the following specifications. TranSight may run on systems below these minimum specs, but functioning is severely impaired.

For standard models:

- Windows Vista, 7, or 8 (32- or 64-bit)
- 1.4 GHz or faster processor
- 2 GB RAM
- 1024x768 display
- 2 GB of available hard-disk space

For large models with 50 or more regions:

- Windows Vista, 7, or 8 (64-bit)  
(32-bit versions of not supported.)
- 4 GB
- 2 GHz or faster processor
- 1024x768 display
- 10 GB of available disk space

Simulation execution time increases exponentially with the number of regions and industry sectors. Large models (i.e. >12 regions) benefit greatly from increased memory capacity and processor speed. For example, on a computer with a 3 GHz Intel Core 2 Duo processor and 3 GB of RAM, a 3 region model will run a 25 year forecast in 6 seconds, while a 51-area model takes 14 minutes.

# Installation

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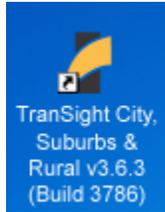
**IMPORTANT NOTE:** You must have Windows administrative privileges to install this software.

When you are ready to install REMI TranSight, insert the provided CD into your CD-ROM drive. The InstallShield installation utility should run automatically. If it does not appear, select your CD drive under “Computer” in Windows Explorer and double-click “setup” or “setup.exe” to start the installation process. A shortcut to the application will appear on the desktop once the installation is complete.

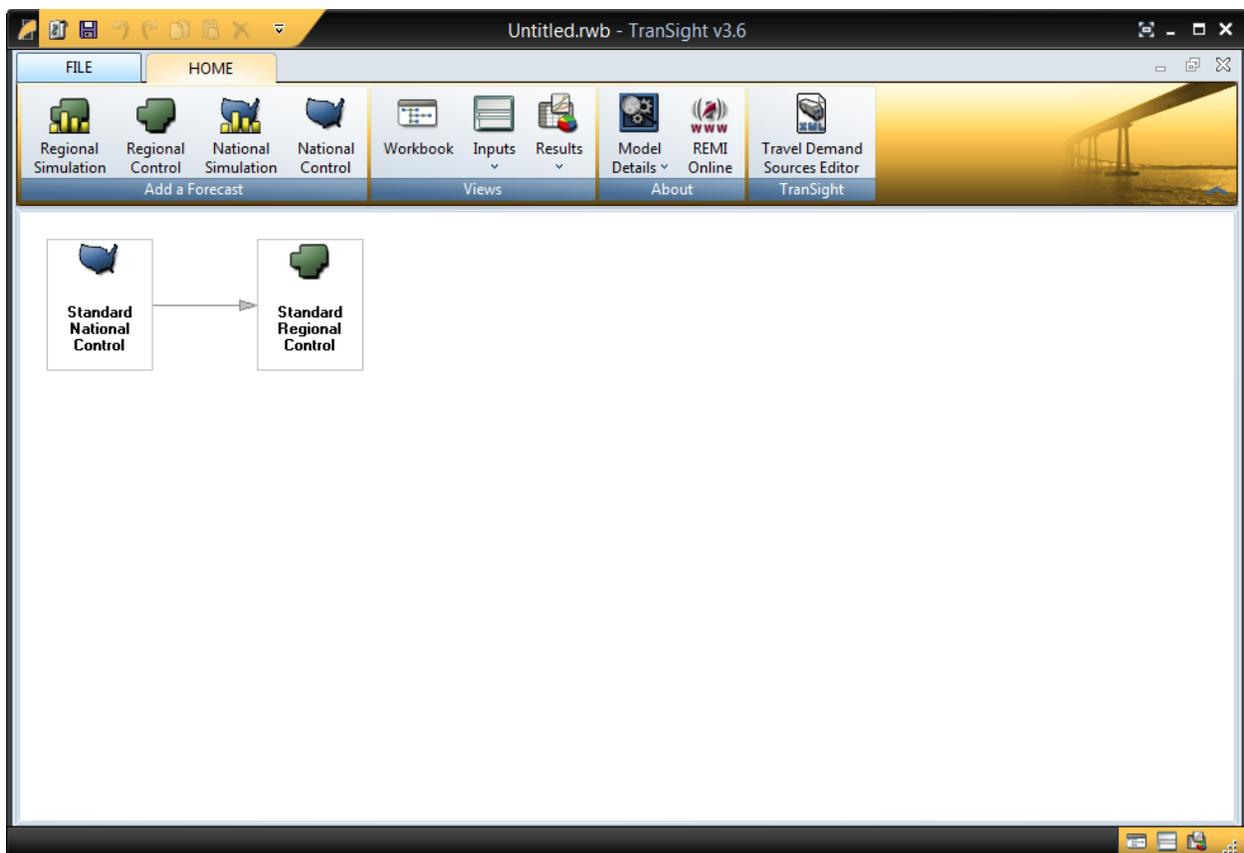
Contact REMI or your system administrator if you need assistance with installation or operation of the software.

# Starting TranSight

To start TranSight, double click on the shortcut appearing on your desktop.

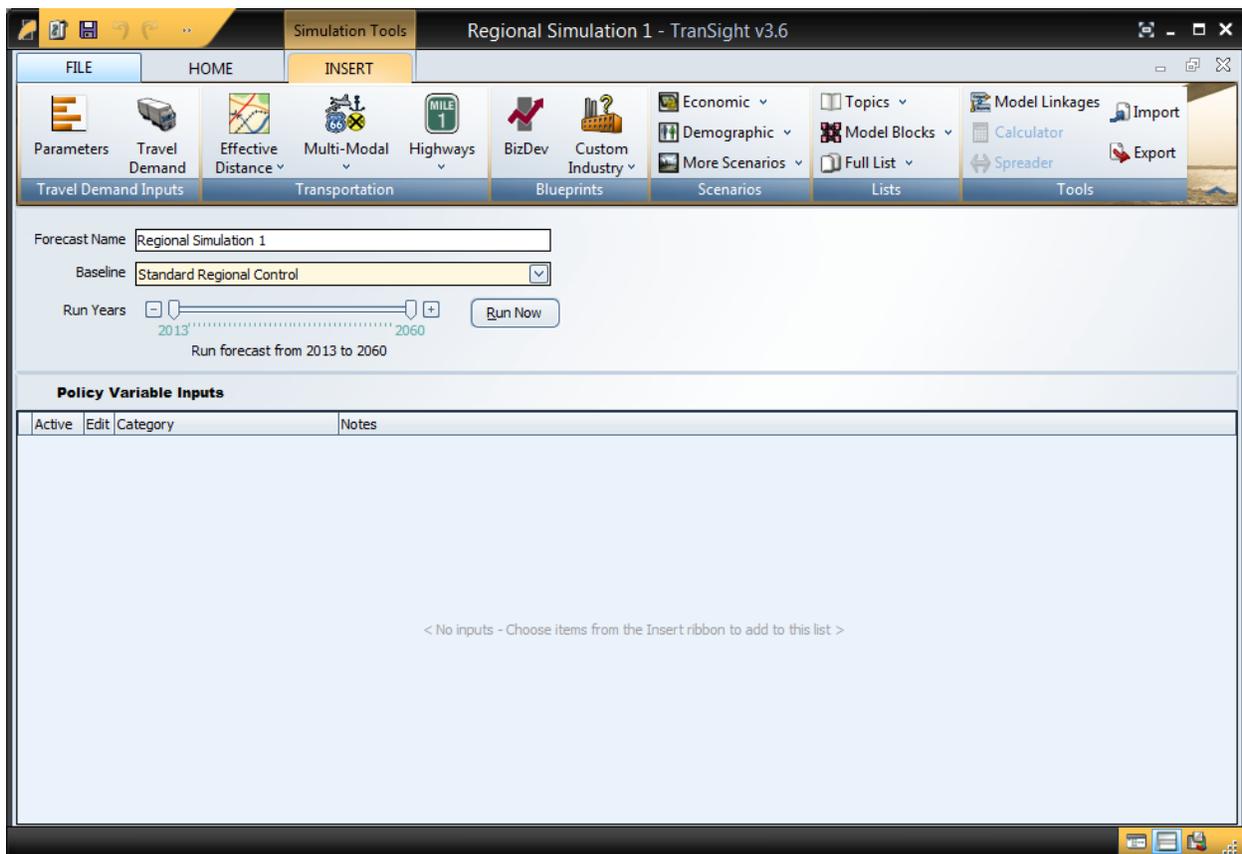


Now you will be viewing the Home tab. Note the default name of the workbook located on the header when you first open TranSight is Untitled.rwb. You will have the opportunity to rename this document when you save a new forecast. The name of the specific model is located on the status bar at the bottom of the window. The ribbon below the Home tab displays three groups: Add a Forecast, Views, TranSight, and About.



- The Workbook view is the default, and contains the Standard National Control and Standard Regional Control. The Inputs view is empty until running additional forecasts, and the Results view gives you the option of displaying the history and forecast of any controls or simulations stored in the workbook.
- The About group provides access to Model Details such as the national input output table and also displays a direct link to the REMI website where additional information and documentation may be found
- The TranSight group contains the Travel Demand Source Editor, which is used to edit the bridge between TranSight and data exported from a Travel Demand Model..

To start a new simulation, click on the Regional Simulation button. The Insert tab now appears.



The Insert tab displays several groups in the ribbon.

- The Travel Demand group allows you to change the baseline parameters used by the Travel Demand module as well as running the Travel Demand module itself. The Travel Demand module is intended to be used with output from a Travel Demand model, but it is also possible to enter data manually.
- The Transportation group organizes access to transportation-related policy variables, specifically Effective Distance, Multi-Modal, and Highways. Under Highways there is also the Quick Study.

- The Blueprints, Scenarios, and List groups organize economic and demographic-related policy variables. The most structured approach are available under Blueprints, a more moderately structured approach under Scenarios, and the least structured approaches in Lists.
- Tools are available to assist with filling in values for previously selected policy variables (Calculator and Spreader) and Importing/Exporting policy variables to or from other applications.

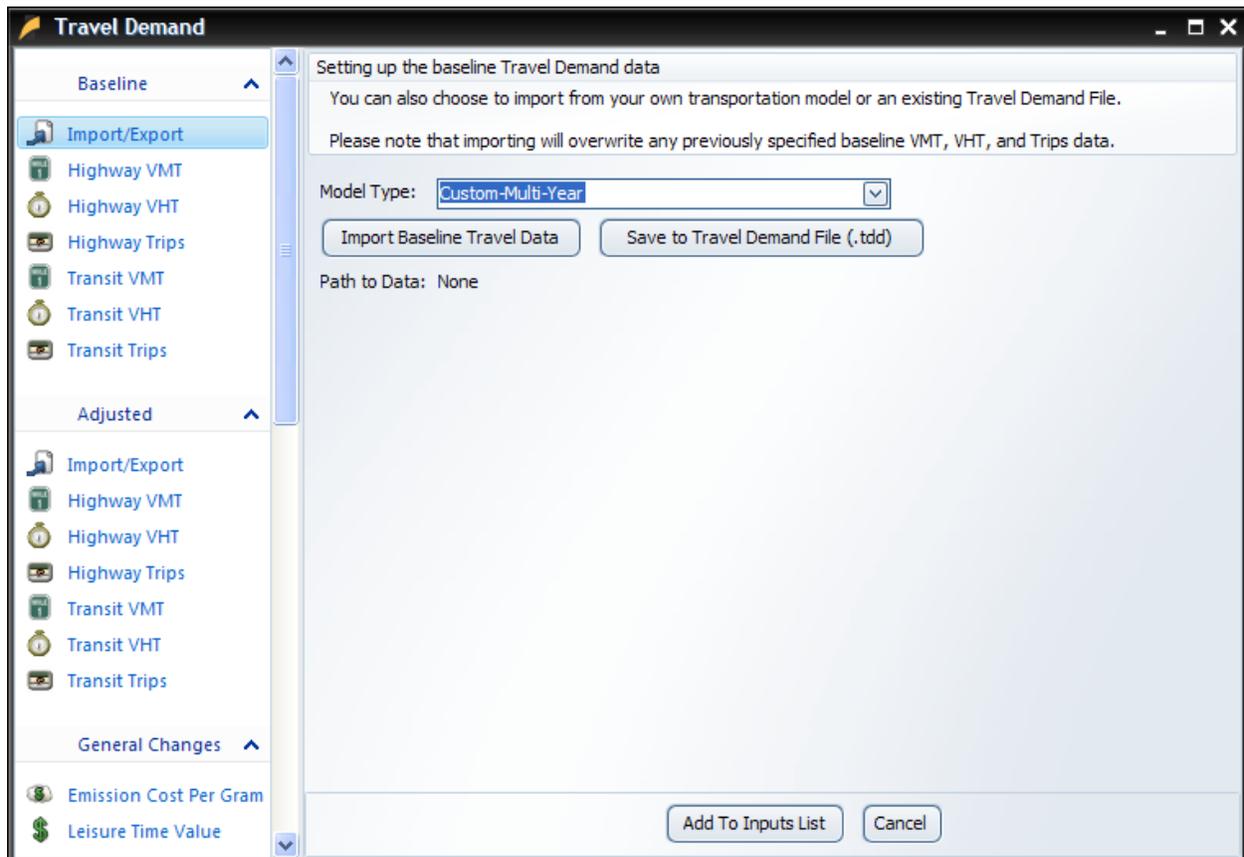
# Modeling a Transportation Scenario

In order to model a Transportation Scenario originating from an exogenous travel demand model (or data entered manually), click on the Travel Demand icon. The Travel Demand Study dialogue will appear, displaying the available inputs.

## Travel Demand Study

The Travel Demand Study imports the data from Travel Demand Models for use in TranSight. You can view Baseline and Adjusted Simulation data; the Baseline Simulation is the “no-build” scenario forecasting what will happen without the proposed changes, and the Adjusted Simulation is the “build” scenario forecasting what will happen if the changes occur. You can also apply different parameters to the Adjusted Simulation data, such as lower accident rates to reflect a build scenario that would also bring safer traffic conditions.

It is also possible to import the same data for the Baseline and Adjusted Simulations and simply make Parameter Changes to see the impact it would have on your existing network.



## Importing Data

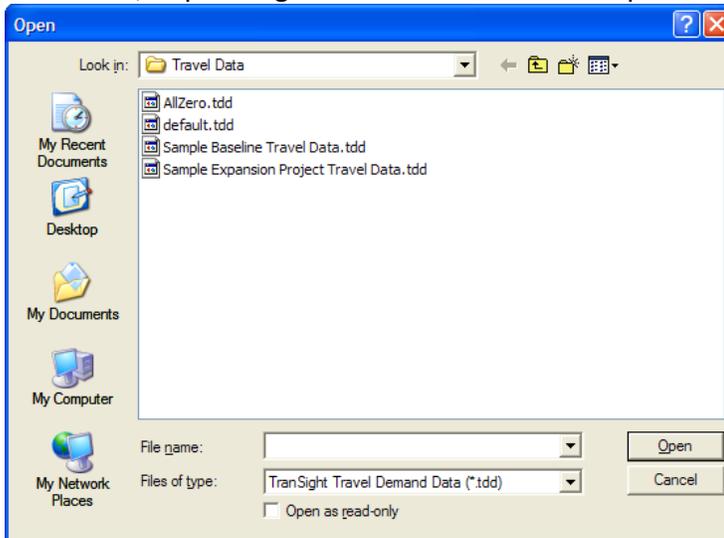
TranSight links travel-demand models to REMI's economic model engine. Importing travel-demand model information is easy, because TranSight automatically converts all the data into policy variables.

1. Under the **Baseline** header, click on **Import/Export**, if it isn't already selected.
2. Select your travel-demand model in the **Model Type** drop-down list.



**Note:** For some import types further phase-in ratios may be needed. If that is the case an array to enter that data will appear below the drop-down list. As with most tables you can right click on the cells to access the **Calculator** to assist with data entry.

3. Click the **Import Baseline Data** or **Import Adjusted Data** button below the **Model Type** drop-down list. This will open a new window which will either let you choose a single file or a folder, depending on the number of files required by the Model Type you chose.



4. Navigate to the folder containing your simulation data.
5. Select it and click the **Open** button.  
**Note:** If selecting a folder you may need to select one of the files within the folder for the import to work. TranSight will then convert the data into a format it can use.
6. After import the **Path to Data:** line should change to reflect the file/folder you have imported.
7. Repeat this process for the **Adjusted Import/Export**.

**Note:** If you lack an Adjusted scenario with your Travel Demand data you can also click the **Copy from Baseline** button and manually adjust the values. Right clicking the table and using the **Calculator** can aid in the process.

## Enter or Adjust data manually

If you do not have access to a Travel Demand model, you can manually enter your own data from spreadsheets. Even with a Travel Demand model you may wish to modify data you have imported.

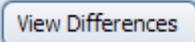
Perform the following steps for both your baseline and/or adjusted simulation(s):

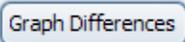
1. Copy and Paste or type in the VMT data for each region-to-region combination, time period, and mode. You are entering the miles, hours, and trips per year for each year of the simulation. You can right click on the table and choose the **Calculator** from the menu to assist with data entry.
2. Repeat step 2 for all concepts (VMT, VHT, Trips) and transportation types (Highway and Transit) that you have data for.
3. Once you entered your data or made your changes you may also wish to save it using the **Save to Travel Demand File (.tdd)** button on the appropriate **Import/Export** page.

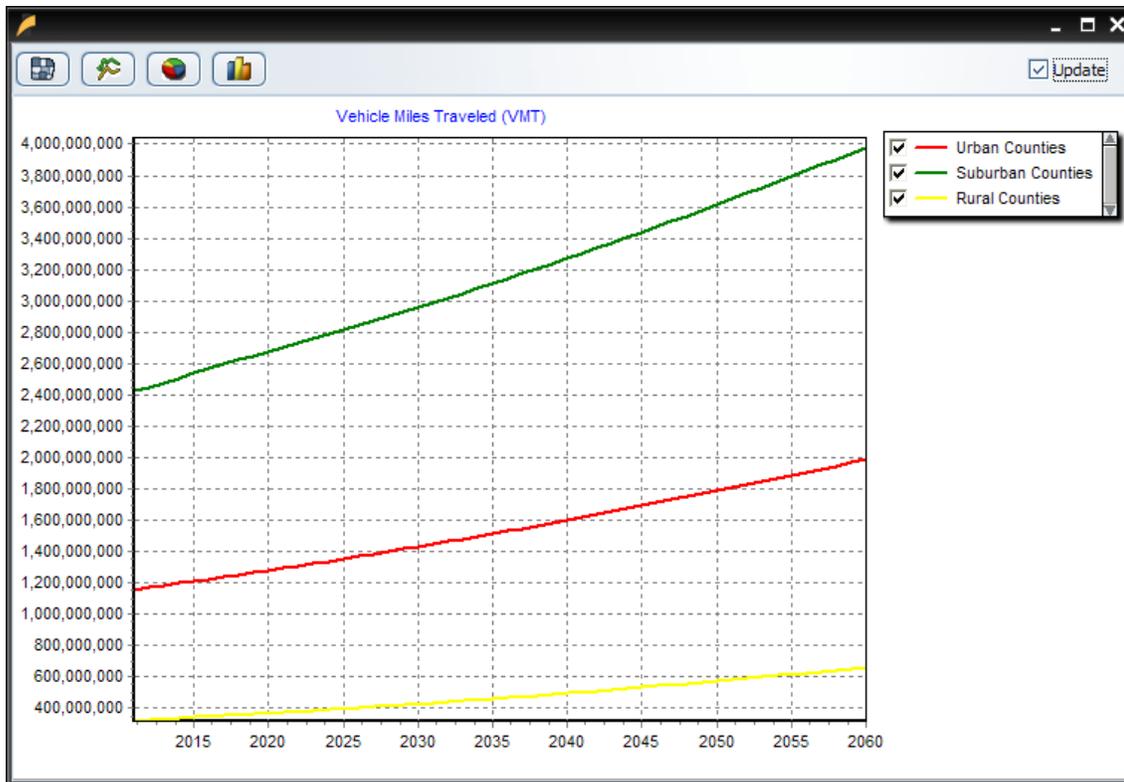
## Baseline and Adjusted Simulations and Computed Difference

TranSight takes the data for the Baseline and Adjusted Simulations directly from your travel-demand model. The Baseline data should normally come from a travel-demand model simulation that includes no transportation projects, or otherwise represents a reference case against which comparisons are made to alternative scenarios.

The Adjusted data should come from a travel-demand model simulation that incorporates one or more upgrades to the transportation network.

The Computed Difference is simply the calculated difference in VMT, VHT, and VTT between the Adjusted Simulation and the Baseline Simulation. To view the Calculated Differences click on the  Button

- All graphed data, baseline, adjusted, and calculated, will be based on the currently selected dimensions (such as Road Mode and Time Period). You can also adjust the layout of the dimensions on the table by right clicking on them to move them to the rows or columns.
- To copy data from any of the tables to the Clipboard (so that you can paste it into another program, such as a spreadsheet), select the cells you wish to copy and use Ctrl+C.
- To see more or fewer decimal digits of detail, right-click and select **Precision +** to increase precision or **Precision –** to decrease precision.
- To graph the Baseline or Adjusted data simply click on the icon for the graphing tool .  
• To Graph the Calculated Differences, click on the  button.

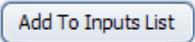


By default it will display as a **Line Chart**. You can also swap the **Pie Chart** or **Bar Chart**, although for Travel Demand data the **Line Chart** will usually be the most useful view.

Right-click on a desired chart and select **Copy** to copy an image of the chart to the Clipboard; you can paste it into a graphics program such as Paint or Photoshop.

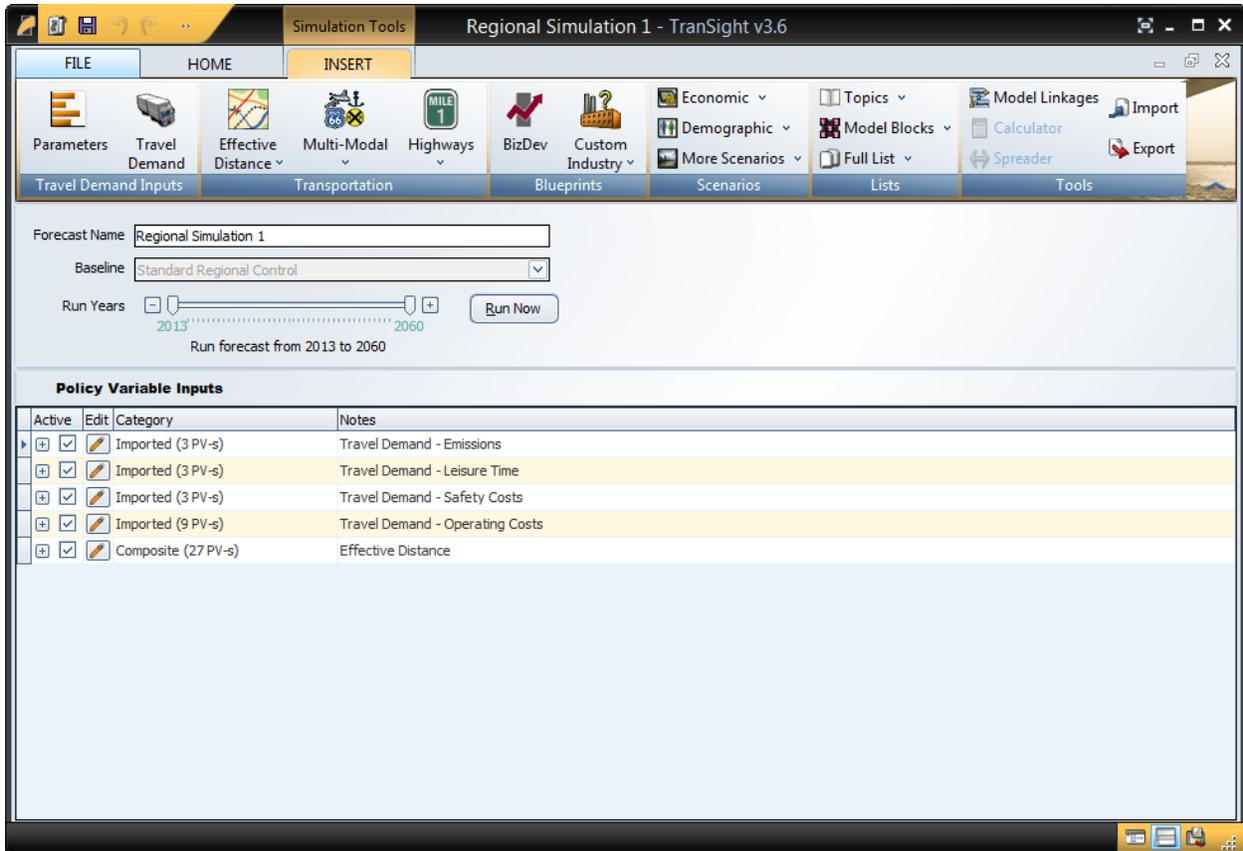
If you have the **Update** checkbox checked then you can keep the chart window open and it will continue to reflect further changes you make to the dataset it was based on. For Calculated Differences this is currently not an option due to the additional calculations necessary.

## The Add To Inputs List Button

When you're ready to add the Policy Variables created by the Travel Demand Study dialogue and return to the Insert ribbon, click the  button. You should now notice that the policy variables list has been filled with the following groups of policy variables:

- **Emissions:** The change in pollution-related health costs (summed across the five major motor-vehicle pollutants) due to the change in VMTs caused by the transportation project. The Amounts tab shows the change in grams of emissions (for each of the five pollutants) due to the change in VMTs.

- **Leisure Time:** The value of leisure time either saved or lost due to the change in VHTs caused by the transportation project. A negative number on this table represents time (and cost) savings for that region.
- **Safety Costs:** The change in accident-related costs (including health and the value of lost life) due to the change in VMTs caused by the transportation project.
- **Operating Costs:** The change in fuel costs and non-fuel costs due to the change in VMTs caused by the transportation project (non-fuel costs include such factors as vehicle maintenance).



Note that no changes to either policy variables or values may be made here, except to make them inactive or active by unchecking/checking the box . Only active variables will be included when the simulation is run. This option makes it easy to run multiple simulations with different combinations of variables included. Doing so isolates the direct impact of individual variables.

Policy Variable Inputs											
Active	Edit	Category	Notes								
<input checked="" type="checkbox"/>		Imported (3 PV-s)	Travel Demand - Emissions								
Items					PV Id						
Active	Category	Detail	Region	Unit Code	Variable Number	2013	2014	2015	2016	2017	2018
<input checked="" type="checkbox"/>	Non-Pecuniary (Amenity) Aspect Total		Urban Counties	2009 Fixed	D41	-1.5879688	-1.6041267	-1.6204902	-1.6370397	-0.8556967	-0.629
<input checked="" type="checkbox"/>	Non-Pecuniary (Amenity) Aspect Total		Suburban Counties	2009 Fixed	D41	-0.2736343	-0.2767097	-0.2798211	-0.2829686	-0.0608103	-0.007
<input checked="" type="checkbox"/>	Non-Pecuniary (Amenity) Aspect Total		Rural Counties	2009 Fixed	D41	-0.6371200	-0.6432622	-0.6494658	-0.6557314	-0.8437480	-0.813
<input checked="" type="checkbox"/>		Imported (3 PV-s)	Travel Demand - Leisure Time								
<input checked="" type="checkbox"/>		Imported (3 PV-s)	Travel Demand - Safety Costs								
<input checked="" type="checkbox"/>		Imported (9 PV-s)	Travel Demand - Operating Costs								
<input checked="" type="checkbox"/>		Composite (27 PV-s)	Effective Distance								

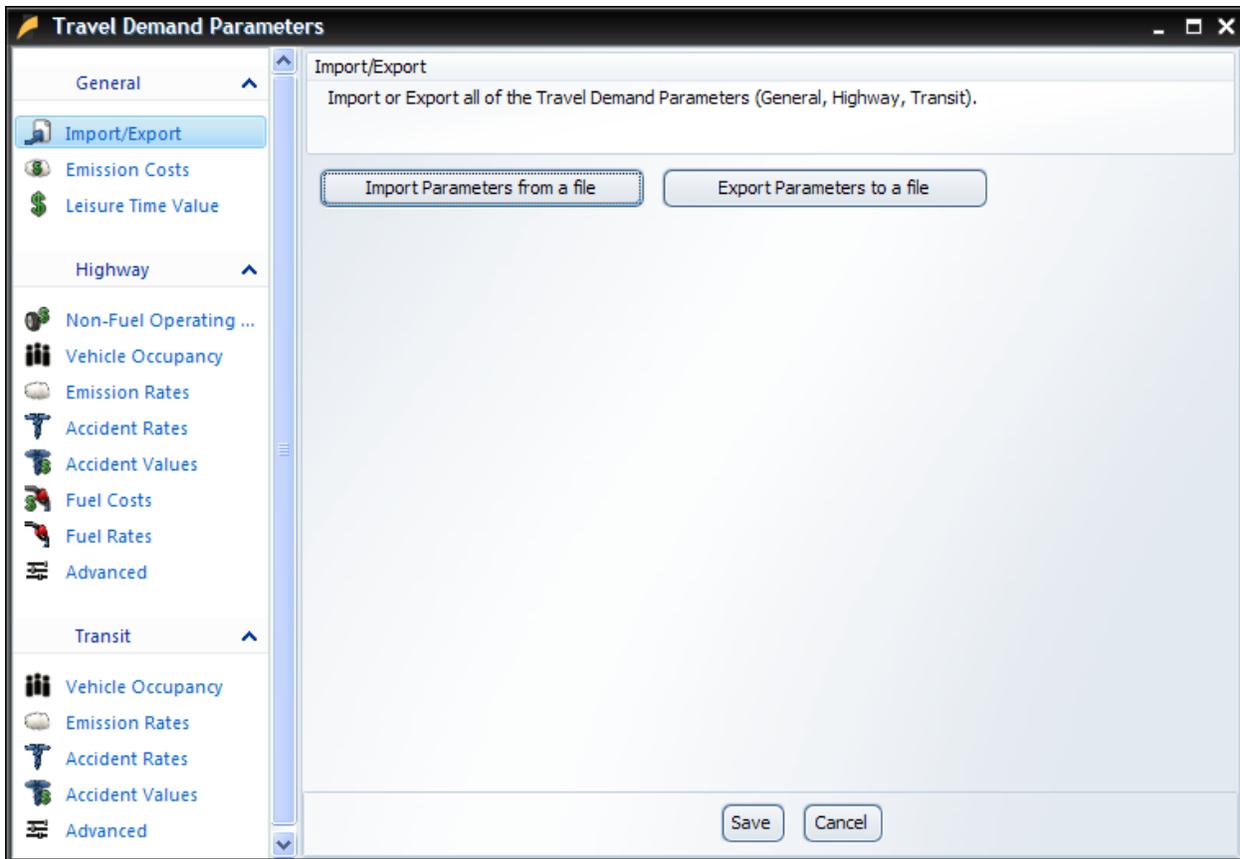
## Simulation Parameters

For a number of costs affected by transportation projects, TranSight includes data derived from national sources. This data includes:

- Fuel and Non-Fuel Operating Costs.
- Fuel Efficiency
- Vehicle Occupancy
- Pollutant Emissions Rates and Costs
- Value of Time
- Accident Rates and Costs

You don't need to change these values, but if you have more accurate local data it is recommended that you use those values instead. To view and edit this data click **Parameters** button in the **Travel Demand Inputs** group on the **Insert** Ribbon. When updating these parameters make sure the units match those specified.





### *General Group*

The General group contains importing and exporting functions as well as parameters that apply to all travel types:

- **Import/Export** – Lets you import previously saved Parameters from a file or Export them for later use.
- **Emission Costs** – Cost per gram for five pollutants (Volatile Organic Compounds, Nitrogen Oxides, Carbon Monoxide, Sulfur Oxides, and Particulate Matter).
- **Leisure Time Value**– Value of Leisure Time (\$US) for each model region.

### *The Highway Group*

The Highway group contains parameters and advanced settings related to highway traffic:

- **Non-Fuel Operating Costs** – Mileage-related vehicle maintenance in Dollars per mile by vehicle mode and region.
- **Vehicle Occupancy**– Average Vehicle Occupancy (passengers per vehicle) by vehicle mode.

- **Emission Rates** – Grams per mile for five pollutants (Volatile Organic Compounds, Nitrogen Oxides, Carbon Monoxide, Sulfur Oxides, and Particulate Matter) by speed and vehicle mode.
- **Accident Rates** – Accidents per million VMT by time of day categorized by Fatalities, Injuries, and PDO (Property Damage Only).
- **Accident Values** –Accident value in \$US categorized by Fatalities, Injuries, and PDO (Property Damage Only).
- **Fuel Costs** – Fuel costs in Dollars per gallon by region and by vehicle mode categorized by Pre-tax Fuel Price, Federal Excise Tax, State Excise Tax.
- **Fuel Rates** – Average mpg speed and vehicle mode.
- **Advanced** – These are weights for specific equations in TranSight. More details on their use can be found at the top of the form and by clicking on the arrow to expand the text.

### *The Transit Group*

The Transit group contains parameters and advanced settings related to transit traffic:

- **Vehicle Occupancy**– Average Vehicle Occupancy (passengers per vehicle) by vehicle mode.
- **Emission Rates** – Grams per mile for five pollutants (Volatile Organic Compounds, Nitrogen Oxides, Carbon Monoxide, Sulfur Oxides, and Particulate Matter) by vehicle mode.
- **Accident Rates** – Accidents per million VMT by mode and categorized by Fatalities, Injuries, and PDO (Property Damage Only).
- **Accident Values** –Accident value in \$US by vehicle mode and categorized by Fatalities, Injuries, and PDO (Property Damage Only).
- **Advanced** – These are weights for specific equations in TranSight. More details on their use can be found at the top of the form and by clicking on the arrow to expand the text.

### *Exporting and Importing Parameters*

Importing the changes that you make in the various Travel Demand Parameters windows is not strictly required; when you change the values in these windows and click Save, TranSight uses these values with your current Simulation until you change them again. However, sometimes you may want to use your changes in a different Simulation or compare results based on two or more sets of values. To make this process easy, TranSight lets you export the Travel Demand Parameters to a file for later recall. The original settings for each tab are set whenever you create a new Simulation

To save the changes you make to the values in the various Travel Demand Parameters, use the **Export Parameters to a file** button from **Import/Export** in the **General** section of the Travel Demand Parameters window. This will save it to a .mcs file.

If you have several datasets that you've saved, you can select one by using the **Import Parameters to a file** button from **Import/Export** in the **General** section of the Travel Demand Parameters window.

## Cost Matrices

You can also view/edit the changes to the Transportation cost matrices by clicking on the **Effective Distance** menu in the **Transportation** Group on the Ribbon. Next choose to edit the values **As Transportation Cost Matrix**. This will take you to the Transportation Costs Editor.

Transportation Costs

Transportation Matrices

Commuting Costs  
 Accessibility Costs  
 Transportation Costs

Views

Region x Region  
 Region x Year  
 Flat View

Year  
2010

Commuting Costs

The Commuting Costs policy variables represent the amount of commuter time savings within or between modeled regions over the average workday.

The effective distances can be modified using policy variables or the transportation cost matrix. Enter the change in transportation costs as a percent change when using policy.

Create effective distance policy variables by making direct changes to the cost matrix

Origin	Destination			
	Urban Counties	Suburban Counties	Rural Counties	Rest of Nation
Urban Counties	1	1	1	1
Suburban Counties	1	1	1	1
Rural Counties	1	1	1	1
Rest of Nation	1	1	1	1

Save Changes Cancel

There are three cost matrices you can view/edit by choosing the appropriate radio button below **Transportation Matrices**:

- **Commuter Costs** - describes the amount of commuter time savings within or between modeled regions over the average workday.
- **Accessibility Costs** - describes access to more diverse consumer goods and services by households, as well as access to a broader array of intermediate inputs by employers.
- **Transportation Costs** - describes the amount of cost savings in transporting goods and services due to an increase in transportation efficiency.

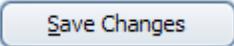
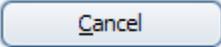
These matrices are used to calculate the amount of cost savings induced by improvements in the transportation network. The numbers in the table represent the percentage of savings

across the transportation system for specific pairs of regions (including within each region), relative to the baseline:

- 1 = no change from the baseline
- Below 1 = cost savings relative to the baseline
- Above 1 = cost increases relative to the baseline (e.g., during a construction period)

For example, 0.99 represents a 1% cost savings across the transportation system for that region or pair of regions.

You can also change the view to better allow you to see or edit the changes made.

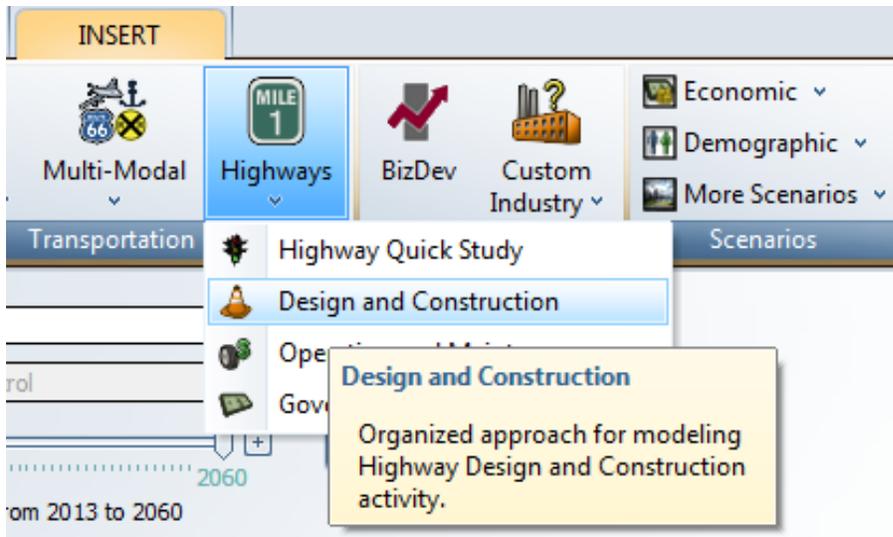
Once you are done making any changes to the matrices, you can click the  button. If you do not wish to save any changes you have made or were simply viewing the results of the Travel Demand Study, click the  button instead.

## Additional Highway Inputs

After you have run the Travel Demand study, you may wish to add additional policy variables to further detail the changes created by the project. Back on the Insert Ribbon under the **Highways** button of the **Transportation** group there are three additional categories of data inputs:

- **Design and Construction**  
A change in road or transit construction activity can enter the model as Demand or Sales/Employment.
- **Operation and Maintenance**  
A change in construction activity reflecting road or transit operation and maintenance spending can enter the model either as Demand or Sales/Employment.
- **Government Funding**  
Funding options for transportation-related projects typically involve a combination of several sources, including federal, state, and local governments, as well as specific consumer and business taxes/fees.

For this Transportation Scenario we will include some Construction to supplement the Travel Demand Study inputs we created earlier. Click on the **Highways** button, and select **Design and Construction**.

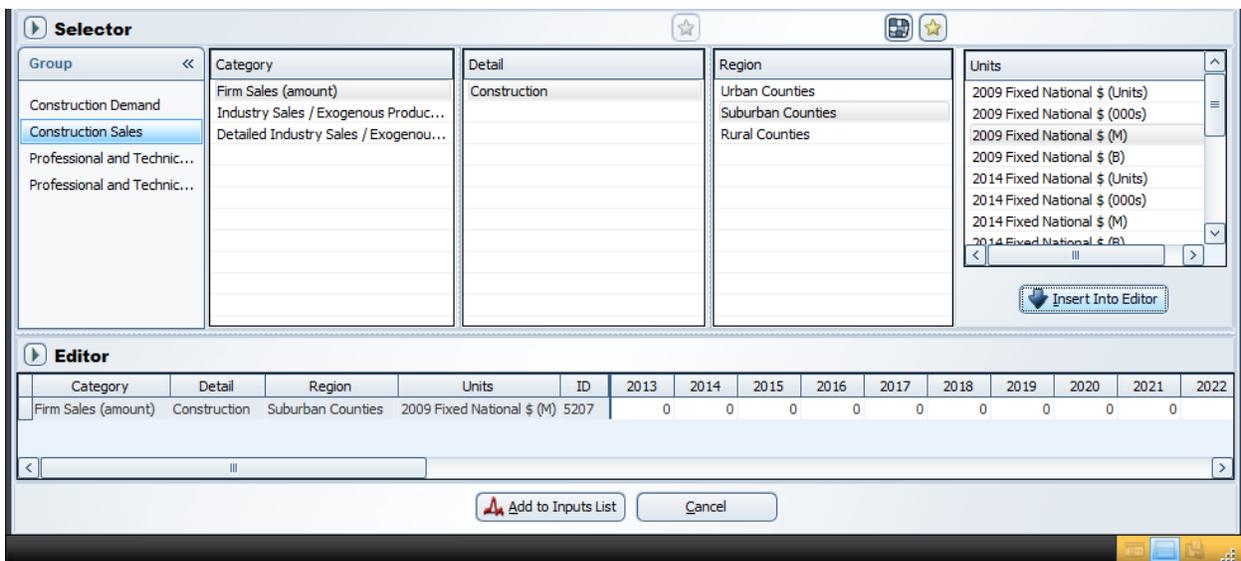


The Selector and Editor grids appear. Give the scenario a meaningful name, such as “Highway Construction”. Read the scenario description for helpful information and hints applicable to the selection.



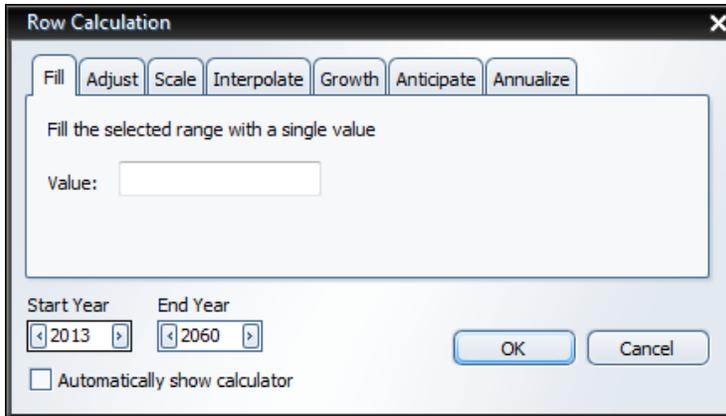
In the Selector grid, choose from applicable groups, in this case, Construction Demand, Construction Sales/Employment, Professional and Technical Services Demand, or Professional and Technical Sales/Employment. A description of each appears in the information box. Select the desired Category, Detail, Region, and Units and then click the Insert Into Editor button.

For this sample scenario, choose Construction Sales, Firm Sales (amount), Suburban, and 2005 Fixed National \$ (M). This is a scenario in which construction sales for particular firms in suburban counties change by a certain amount in millions of dollars. Read the information box for additional notes regarding the policy variable. When ready, click the Insert Into Editor button.



Using the Editor grid, values can be entered for each year. To assist in the entry process, the Spreader and Calculator tools may be helpful. The Spreader allows you to spread values across selected policy variables and the Calculator allows you to fill a selected range with a specific number in addition to calculating various types of growth and decline. Here's how to access the calculator:

1. Select a year or set of years in the editor grid. The Calculator function now becomes an available tool. Click the Calculator. The Row Calculation window opens.



2. Select the function you wish to use by clicking on the appropriate tab.
3. Enter the values for the given calculation type.
4. Click on OK, and the numbers in the selected cells change accordingly.

The Row Calculation tabs are defined below.

- **Fill Range**—Enters the same number in each of the selected cells. For example, if you enter 50, then the number 50 would appear in each cell in your selection.
- **% Change**—Changes the selected cells by the percentage that you enter.
- **± Value**—Changes the selected cells by the number you indicate. For example, if you entered 10, the program adds 10 to the number in each cell.
- **Linear (Interpolate Rows)**—Select this option to have the system work with your beginning and endpoint values for a particular row. For example, suppose that for a particular TranSight variable you have target values for every fifth year. Use this option to assign yearly values linearly interpolated between the five-year targets.
- **Exponential (Interpolate Rows)**—Select this option to have the system work with your beginning and endpoint values for a particular row. Unlike linear interpolation, the function determines a geometrical growth rate between the endpoints, and distributes the change between those two points geometrically.
- **Annualize**—Calculates the annualized payments required to pay the amount borrowed at a given interest rate for a fixed number of years. To use this option you need to enter the number of years over which the payments are to be made (or choose “Selected Years” if

the highlighted range reflects this number), the value being financed, and the interest rate. The rate is entered as a percent.

For this scenario, we simply want to fill the value 10 from the Start Year of 2010 to the End Year of 2015. Make these changes and click OK.

The 'Row Calculation' dialog box has the 'Fill' tab selected. The text inside says 'Fill the selected range with a single value'. The 'Value' field contains '10'. The 'Start Year' is set to '2013' and the 'End Year' is set to '2020'. There are 'OK' and 'Cancel' buttons at the bottom right, and an unchecked checkbox for 'Automatically show calculator' at the bottom left.

10 should be filled in the Editor Grid representing a 10 million dollar increase in Construction Sales in suburban regions for 2010 to 2015.

The 'Editor' window shows a grid with columns for years from 2013 to 2022. The row for 'Firm Sales (amount)' has a value of 10 for each year from 2013 to 2020, and 0 for 2021 and 2022. The 'Add to Inputs List' button is highlighted at the bottom.

Category	Detail	Region	Units	ID	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Firm Sales (amount)	Construction	Suburban Counties	2009 Fixed National \$ (M)	5207	10	10	10	10	10	10	10	10	0	0

If this is the only desired policy variable change, click the **Add to Inputs List** button at the bottom of the screen. The Policy Variable Inputs view now displays the Construction Sales policy variable that was just entered and the Travel Demand Scenario added earlier.

The 'Policy Variable Inputs' table lists several categories. The 'Composite (1 PV-s)' category for 'Highway Construction' is highlighted in blue.

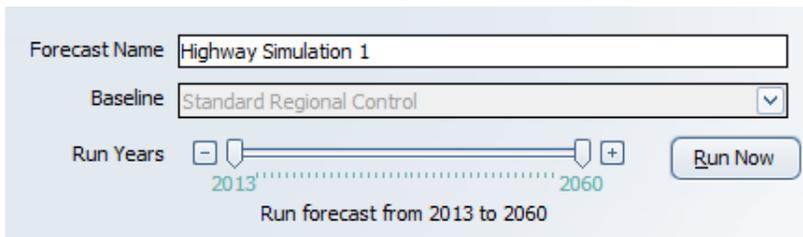
Active	Edit	Category	Notes
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Imported (3 PV-s)	Travel Demand - Emissions
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Imported (3 PV-s)	Travel Demand - Leisure Time
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Imported (3 PV-s)	Travel Demand - Safety Costs
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Imported (9 PV-s)	Travel Demand - Operating Costs
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Composite (27 PV-s)	Effective Distance
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Composite (1 PV-s)	Highway Construction

Note that no changes to either policy variables or values may be made here, except to make them inactive or active by unchecking/checking the box .

Only active variables will be included when the simulation is run. To go back and edit policy variables or their values, click on the edit button , which will take you back to the Selector/Editor grid.

It is a good idea to give the forecast a meaningful name by changing the text in the text box labeled Forecast Name. This will make it easier to identify this simulation while you are in the Workbook view. For this example, we will use “Highway Simulation 1”.

You may also determine the appropriate baseline which the simulation will be compared to (the Standard Regional Control is the default and only option unless the user has created other alternatives). Also, determine the length of the forecast to be run (2050 is the default).



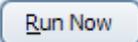
Forecast Name: Highway Simulation 1

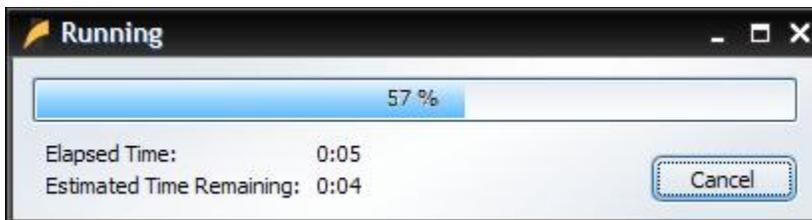
Baseline: Standard Regional Control

Run Years: 2013 to 2060

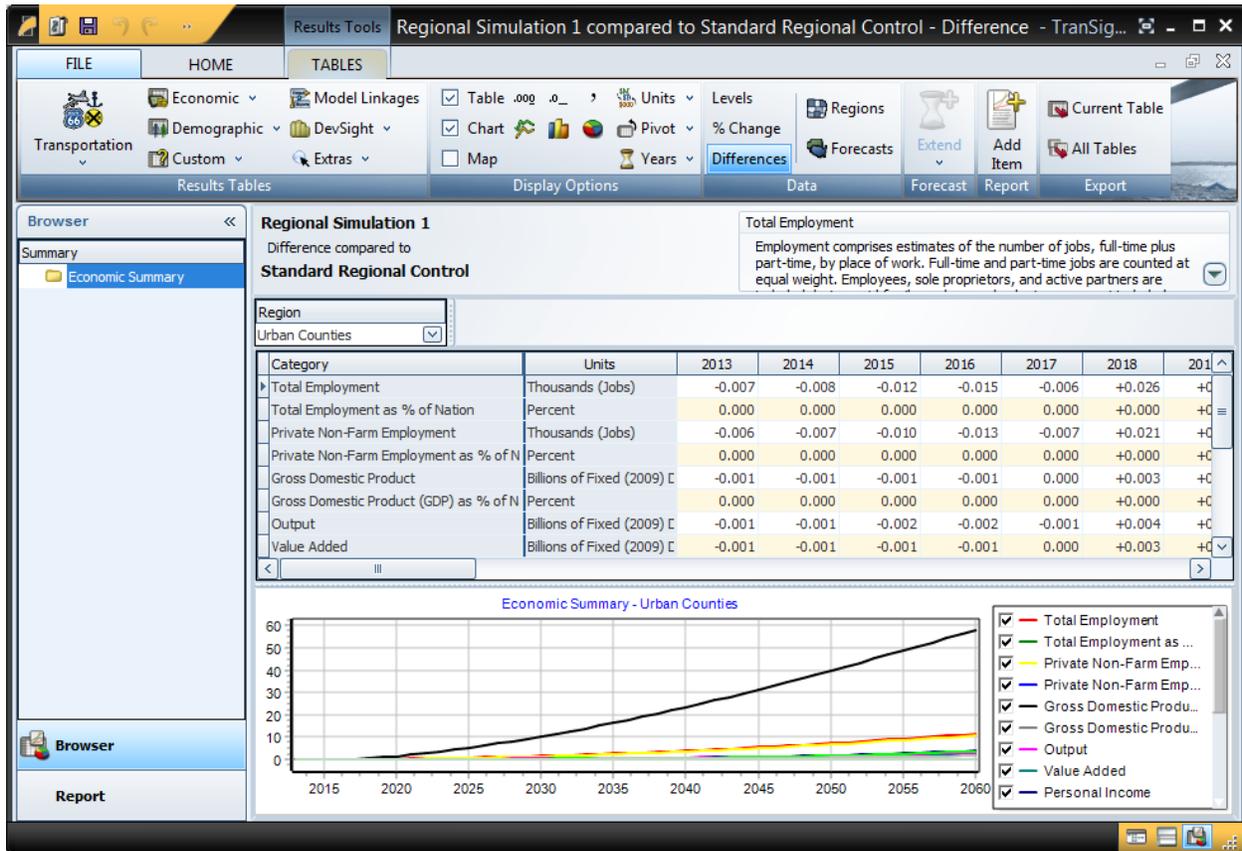
Run forecast from 2013 to 2060

Run Now

When ready to run the simulation, click the  button. A status bar displays stating the elapsed time and estimated time remaining. Models with a small number of regions will run in only a few seconds on a fairly fast computer.



When the forecast has completed running, the Results tab appears.



It is helpful at this time to maximize the application display so it fills your monitor screen, if you have not already done so.



The default view shows Summary concepts displayed as both a table and a line chart. The Display group on the far left of the ribbon also provides a map view for multi-region models. One, two, or all three views may be activated at a time.

- The Display group also has buttons for adjusting decimal precision, chart type, and allows pivoting of the data to rearrange the layout of the grid.
- The Data group provides buttons for viewing the data as levels, percent change, or differences. It also



allows the Years, Regions, and Forecasts viewed to be adjusted.

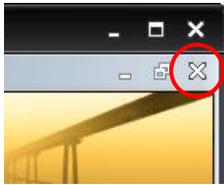
- The Results Tables group presents several categories of tables to view. Under Economic one can find all of the model's economic variables in organized tables. Under Demographic one can find all of the model's demographic concepts in organized tables. Custom Tables allows you to edit and create tables according to your own needs. It is also possible to view tables related to the Model Linkages diagram, DevSight, and several Extras, such as Analytical Graphs.



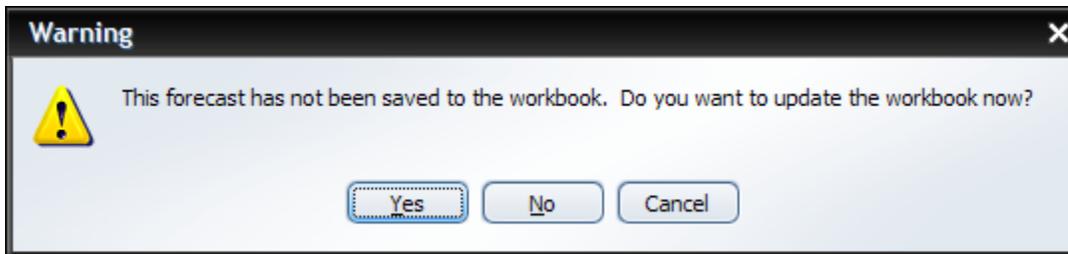
- The Export group allows you to save a table to another format for easy import into other applications, such as a spreadsheet.



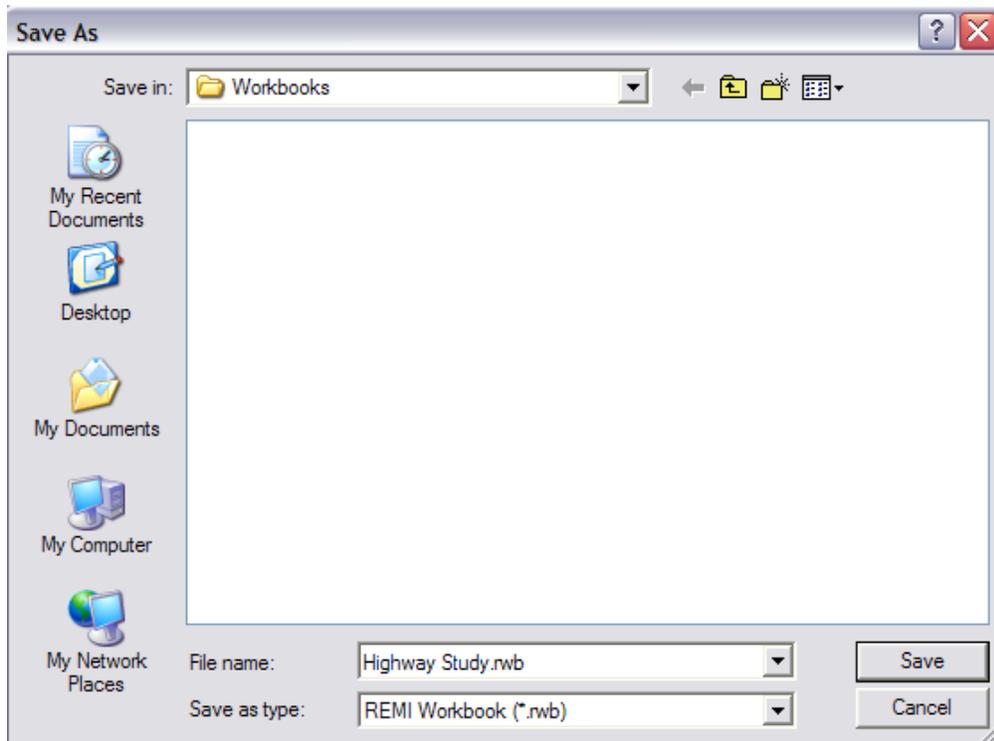
When done viewing the simulation results, close the Results tab window by clicking on lower X in the upper right hand corner.



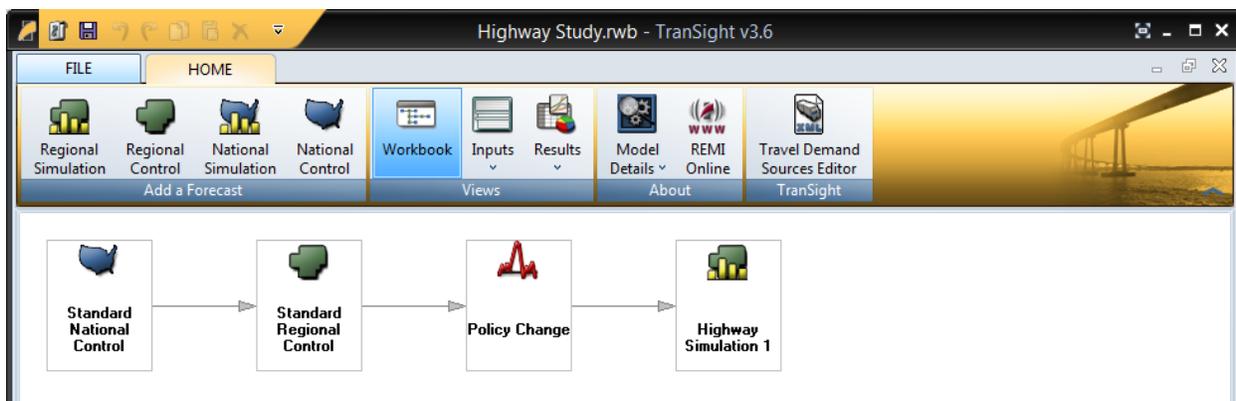
Then close the Insert tab window by clicking again on the lower X in the upper right hand corner. You will be prompted to save the forecast to the workbook. Click Yes.



Then you will be prompted to give the workbook a name, such as Highway Study. Then click the Save button.



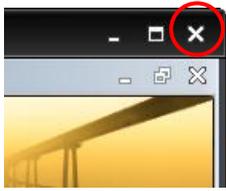
Your Workbook view will now display the Highway Study simulation labeled **Highway Simulation 1**.



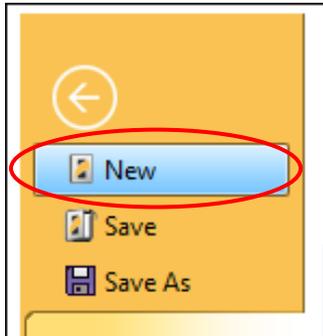
To reexamine the policy variable inputs, simply double click on the **Policy Change** box of the flow chart. To reexamine the simulation results, double click on **Highway Simulation 1** box.

Likewise, the **Standard Regional Control** and **Standard National Control** data may be viewed by double clicking on those respective boxes.

To close the application, click on the top X in the upper right hand corner.

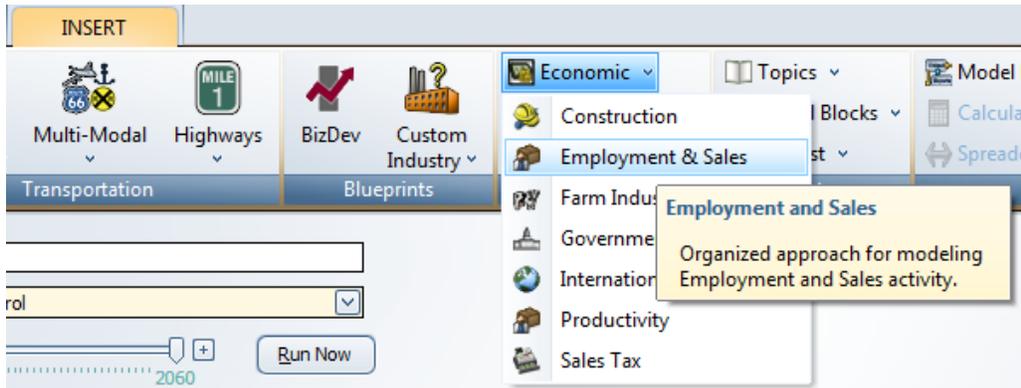


To start over, click the File Tab and select New. Then decide whether you want to save the simulation before starting over.



# Modeling an Economic Scenario

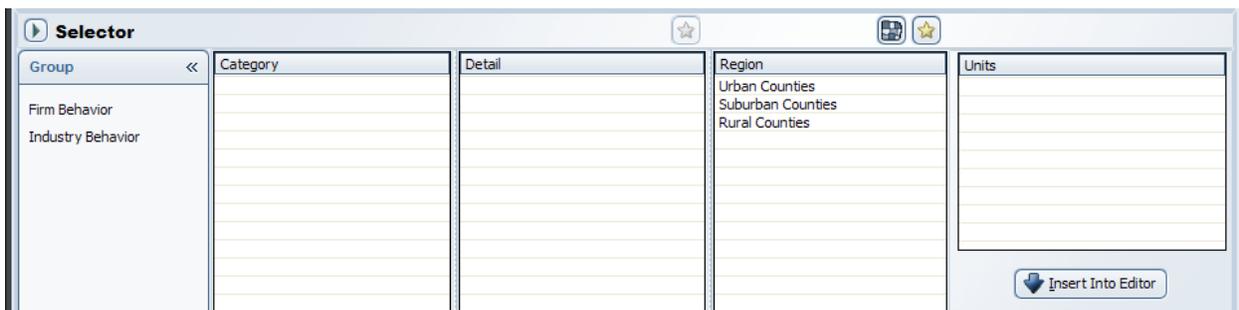
To model an Economic Scenario, such as a plant shutdown, click on the Scenarios button, and select Employment & Sales.



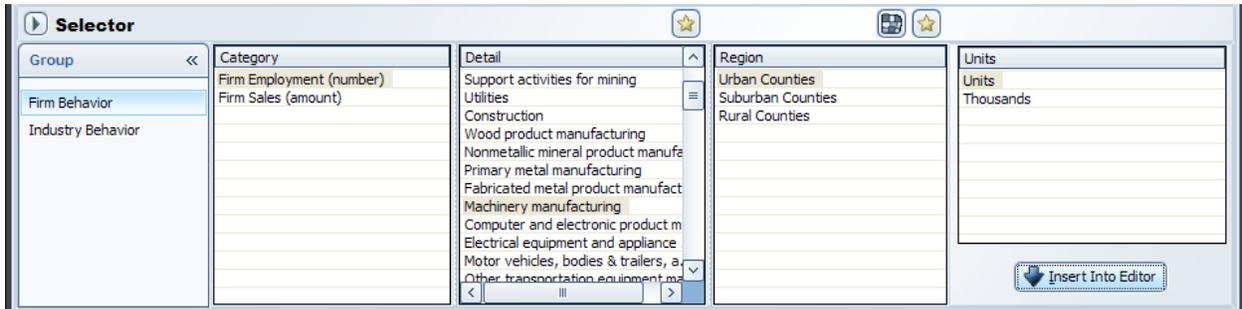
The Selector and Editor grids appear. Give the scenario a meaningful name, such as “XYZ Plant Shutdown.” Read the scenario description for helpful information and hints applicable to the selection.



In the Selector grid, choose from applicable groups, in this case, Firm Behavior or Industry Behavior. A description of each appears in the information box. If you know that XYZ is a manufacturing company, but you are not sure whether or how much it supplies the local region, choose Firm Behavior.



In the Category box, choose Firm Employment, since for this simulation we will assume we know the number of direct jobs being lost. This selects the specific policy variable to be changed. Read the information box for additional notes regarding the policy variable. In the Detail box, select the industry that XYZ is classified as. In this example, assume it is Machinery manufacturing. In the Region box, select the region where the plant is located, which is Urban Counties. In the Units box, select the appropriate units matching your inputs, in this case Units (number of individual jobs).

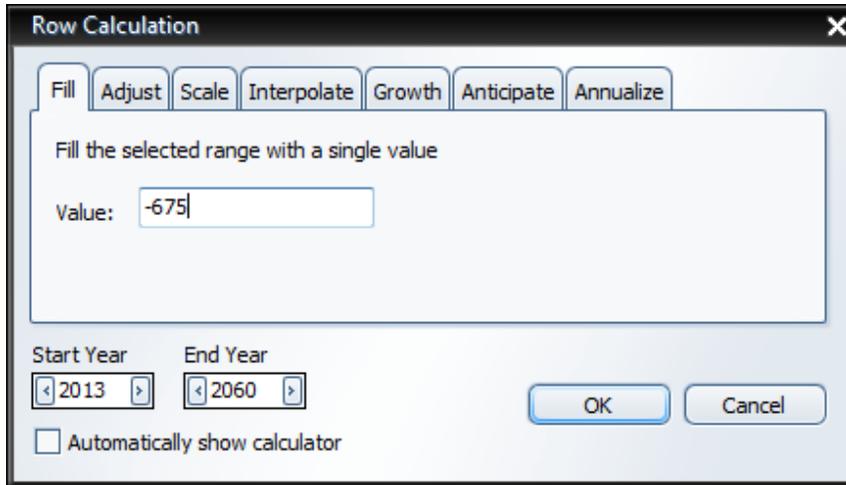


When ready, click the Insert Into Editor button.  The Editor grid now displays the policy variable selected. Enter job losses, with a negative value, by year. Since the value will be constant throughout the forecast period to reflect permanent job losses, the calculator may be used to automatically fill in the values for all years.

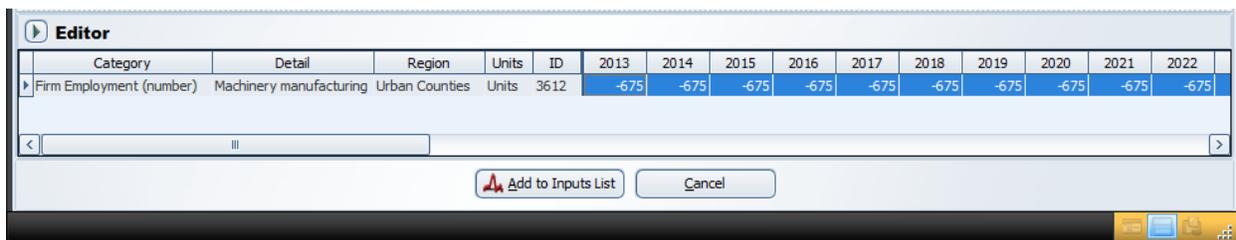
The Editor interface displays a data grid with the following columns: Category, Detail, Region, Units, ID, and years from 2013 to 2022. The data row shows 'Firm Employment (number)' for 'Machinery manufacturing' in 'Urban Counties' with 'Units' as the unit and '3612' as the ID. The values for all years from 2013 to 2022 are 0. Below the grid are 'Add to Inputs List' and 'Cancel' buttons.

Category	Detail	Region	Units	ID	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Firm Employment (number)	Machinery manufacturing	Urban Counties	Units	3612	0	0	0	0	0	0	0	0	0	0

To do this, highlight the range of cells, in this case 2010-2060, and click on the Calculator button on the Tools group of the ribbon. Enter the value to be filled in each year, in this case -675 (for a job loss of 675 employees). Then click OK.

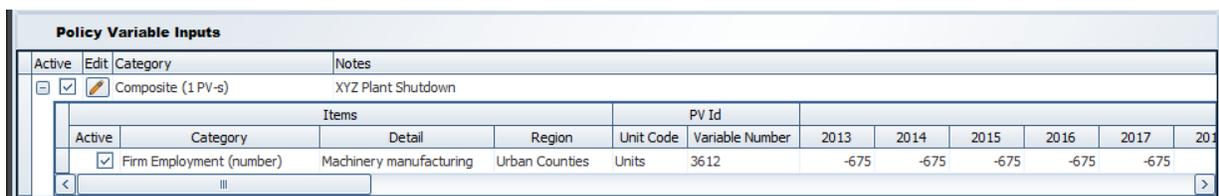


The Editor grid is now filled with a time series of the value entered.



If this is the only desired policy variable change (perhaps because it is the only input information available), click the **Add to Inputs List** button at the bottom of the screen.

The Policy Variable Inputs view now displays, listing the policy variable category just created. Click the expand button (+) to see the details.



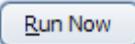
In this example, only one policy variable is listed. If multiple variables had been selected, then would also be listed here. Note that no changes to either policy variables or values may be made here, except to make them inactive or active by unchecking/checking the box .

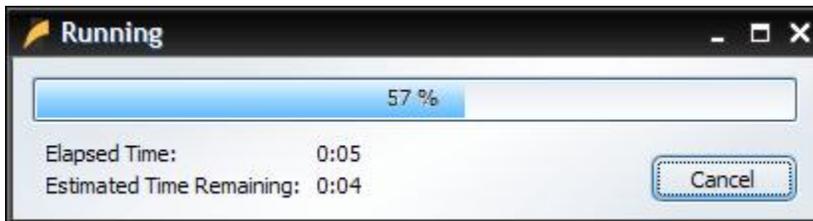
Only active variables will be included when the simulation is run. To go back and edit policy variables or their values, click on the edit button , which will take you back to the Selector/Editor grid.

It is a good idea to give the forecast a meaningful name by changing the text in the text box labeled Forecast Name. This will make it easier to identify this simulation while you are in the Workbook view. For this example, we will use “XYZ Plant Shutdown”.

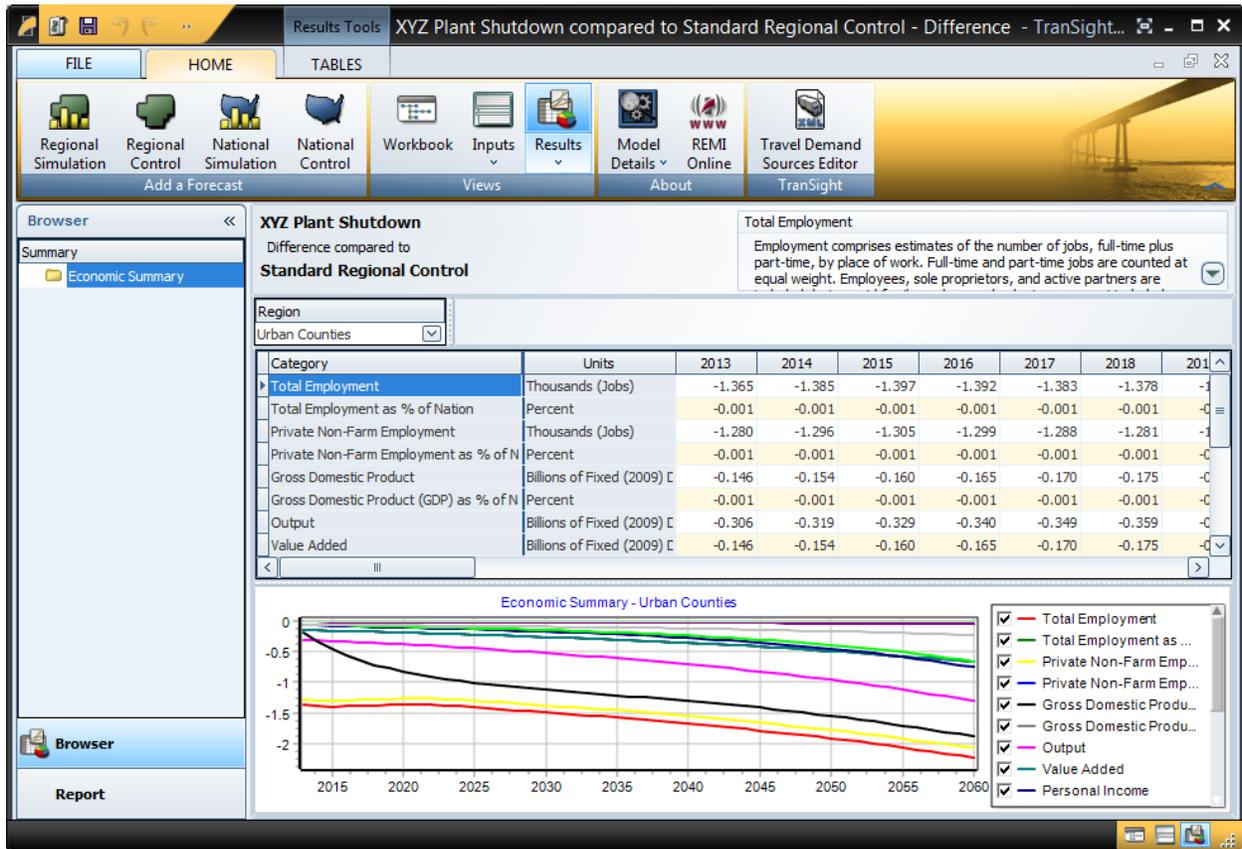
You can determine the appropriate baseline which the simulation will be compared to (the Standard Regional Control is the default and only option unless the user has created other alternatives). Also, determine the length of the forecast to be run (2060 is the default).



When ready to run the simulation, click the  button. A status bar displays stating the elapsed time and estimated time remaining. Models with a small number of regions will run in only a few seconds on a fairly fast computer.



When the forecast has completed running, the Results tab appears.

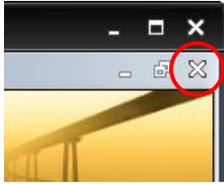


It is helpful at this time to maximize the application display so it fills your monitor screen, if you have not already done so.

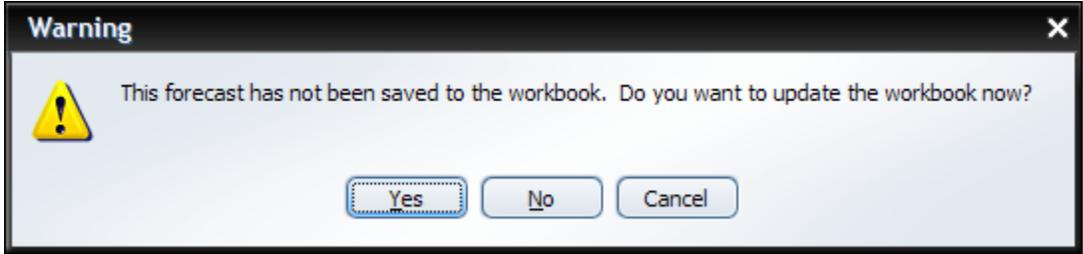


As was described in the previous simulation, the default view shows Summary concepts displayed as both a table and a line chart. The Display group on the far left of the ribbon also provides a map view for multi-region models. One, two, or all three views may be activated at a time. For further details on what the elements of these groups do, please review the previous section **Modeling a Transportation Simulation**.

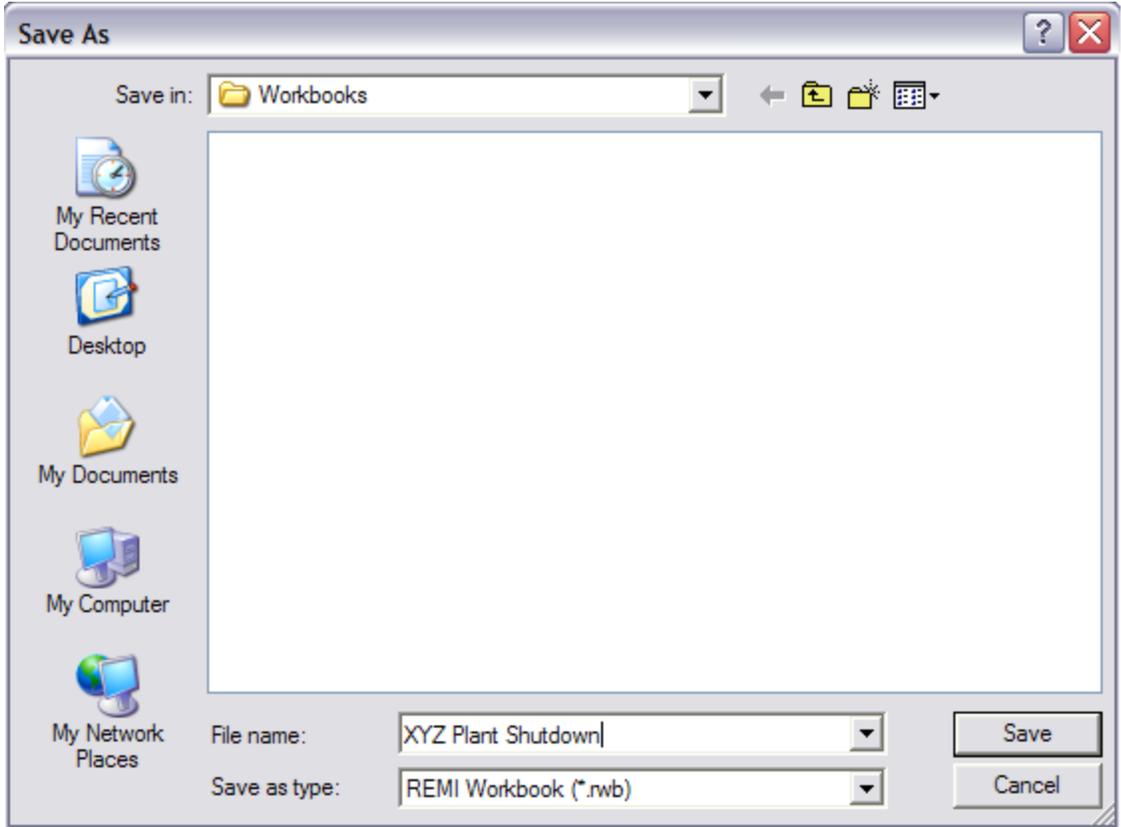
When done viewing the simulation results, close the Results tab window by clicking on lower X in the upper right hand corner.



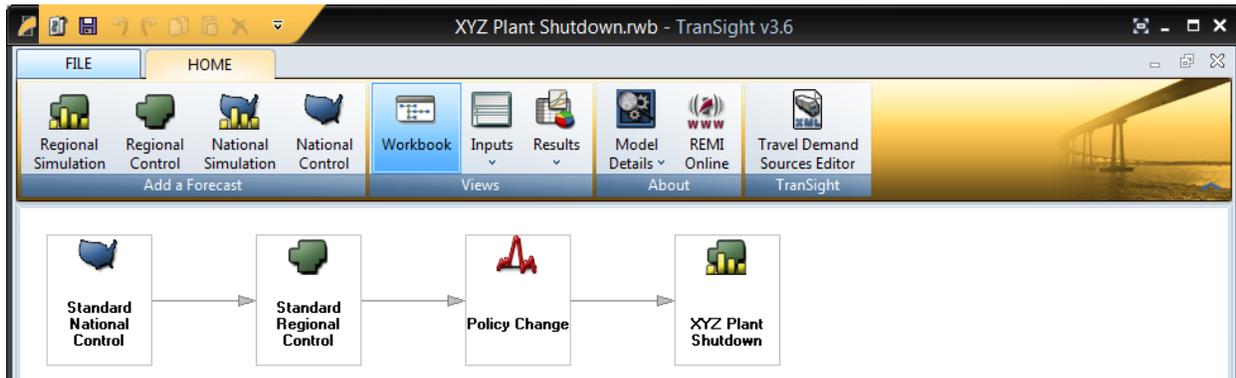
Then close the Insert tab window by clicking again on the lower X in the upper right hand corner. You will be prompted to save the forecast to the workbook. Click Yes.



Then you will be prompted to give the workbook a name, such as XYZ Plant Shutdown. Then click the Save button.



Your Workbook view will now display the XYZ Plant Shutdown simulation.



To reexamine the policy variable inputs, simply double click on the Policy Change box of the flow chart. To reexamine the simulation results, double click on the XYZ Plant Shutdown box.

Likewise, the Standard Regional Control and Standard National Control data may be viewed by double clicking on those respective boxes.

To close the application, click on the top X in the upper right hand corner.



# Other Features and Usage Tips

## Cumulating Policy Variables and Understanding Results

Introducing one policy variable at a time into a simulation facilitates understanding how the specific choice and magnitude of the input affects the net results. This may be especially useful when there are different or offsetting components that make up the analysis.

This process is best illustrated with a simple example. Say a state or local government is considering increasing its general level of services and plans to finance this with an increase in personal taxes. Running these two policy variables together will generate the net results, but this will not necessarily give the analyst a feel for the magnitude of the positive impact of the new spending versus the negative impact of the new taxes. By running the simulation in a cumulative fashion, the individual effects as well as the net effects can be understood.

## Selecting and Activating Variables

**Step 1:** Start a new Regional Simulation. Click the **Topics** button on the Insert tab ribbon, and select **Government Spending**. In the Selector grid, click on **Government Spending (amount)**, choose the **Urban Counties** region. Then choose the appropriate units, in this case **2014 Chained National \$ (M)**. Click **Insert into Editor**, and enter a value of 100 for each year for 10 years, beginning in 2014 (\$100 million per year from 2014-2023). Then click the **Add to Inputs List** button.

**Government Spending Topic**

Name:

Notes for Government Spending (amount)  
 ⚠ A change in this type of government spending is not assumed to lead to a change in the perception of the amenities associated with living in the area.

**Selector**

Category	Detail	Region	Units
Government Spending (amount)	Total	Urban Counties	2014 Chained National \$ (M)
State Government Spending (amount)		Suburban Counties	
Local Government Spending (amount)		Rural Counties	
Government Spending including Non-Pecuniar ...			

**Editor**

Category	Detail	Region	Units	ID	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Government Spending (amount)	Total	Urban Counties	2014 Chained National ...	94	0	100	100	100	100	100	100	100	100	100

**Add to Inputs List**

**Step 2:** To add the second policy variable, click the **Topics** button on the Insert tab ribbon and select **Consumer Taxes**. In the Selector grid, click on **Personal Taxes (amount)**, choose the **Urban Counties** region. Then choose the appropriate units, in this case **2014 Chained National \$ (M)**. Click **Insert into Editor**, and enter a value of 100 for the same years as the last policy variable (2014-2023). Then click the **Add to Inputs List** button.

**Consumer Taxes Topic**

Name:

**Selector**

Category	Detail	Region	Units
Consumer Spending (amount)	Total	Urban Counties	2009 Fixed National \$ (Units)
Government Spending (amount)		Suburban Counties	2009 Fixed National \$ (000s)
State Government Spending (amount)		Rural Counties	2009 Fixed National \$ (M)
Local Government Spending (amount)			2009 Fixed National \$ (B)
Government Spending including Non-Pecuniar...			2014 Fixed National \$ (Units)
Personal Taxes (amount)			2014 Fixed National \$ (000s)
Consumer Price (amount)			2014 Fixed National \$ (M)
			2014 Fixed National \$ (B)

**Editor**

Category	Detail	Region	Units	ID	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Personal Taxes (amount)	Total	Urban Counties	2014 Fixed National \$ (M)	34	0	100	100	100	100	100	100	100	100	100	100

**Add to Inputs List** **Cancel**

**Step 3:** The Policy Variable Inputs View shows both policy variables. For the first simulation, we want to run one alone, so deactivate the **Personal Taxes** policy variable by unchecking the active box. Name the forecast, in this case, **\$100M Government Spending Alone**, and set the run to year to 2023 since we are only interested in a 10 year time horizon.

Forecast Name:

Baseline:

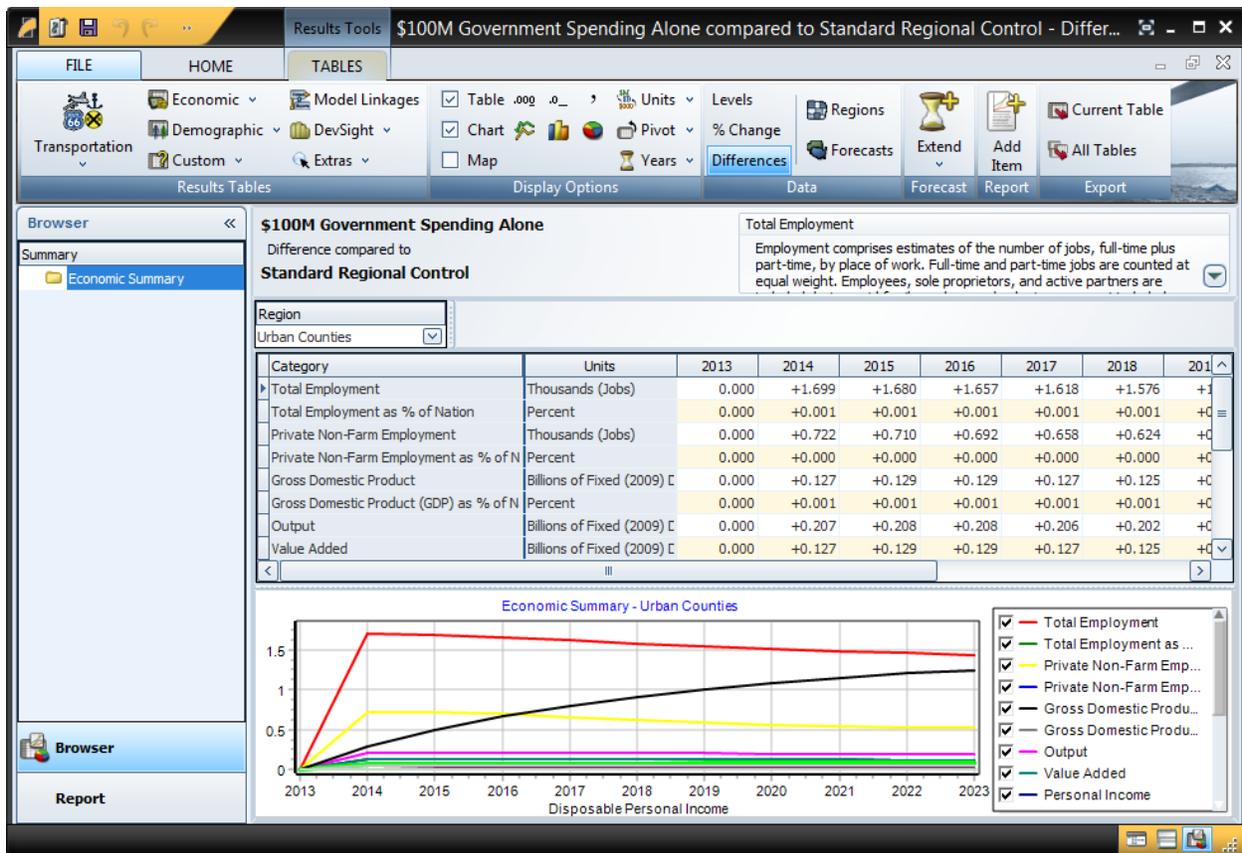
Run Years:    **Run Now**

Run forecast from 2013 to 2023

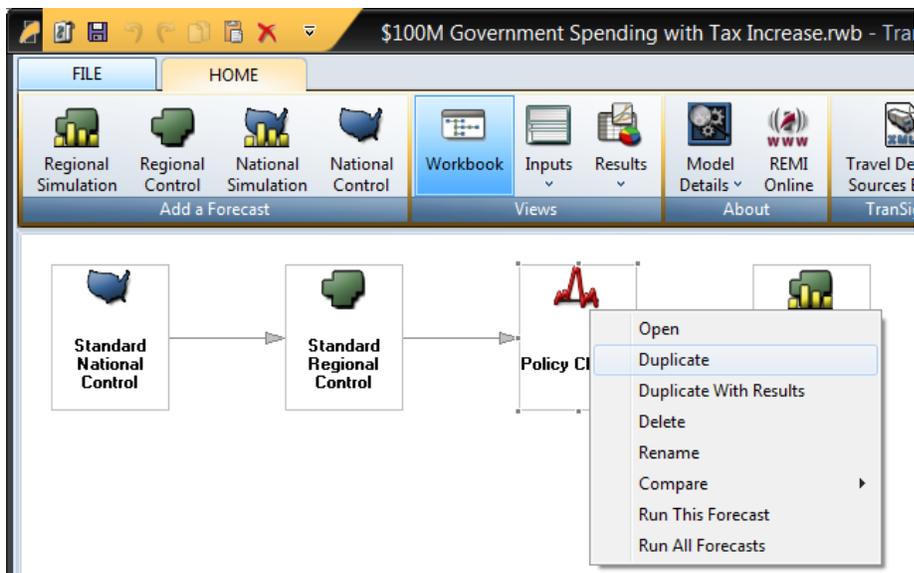
**Policy Variable Inputs**

Active	Edit	Category	Notes
<input checked="" type="checkbox"/>		Composite (1 PV-s)	New Government Spending Topic
<input type="checkbox"/>		Composite (1 PV-s)	New Consumer Taxes Topic

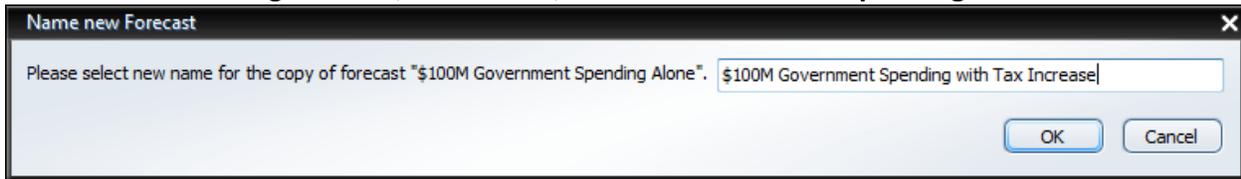
Then click the **Run Now** button. The results show the effect of the additional government spending only, which leads to positive employment changes.



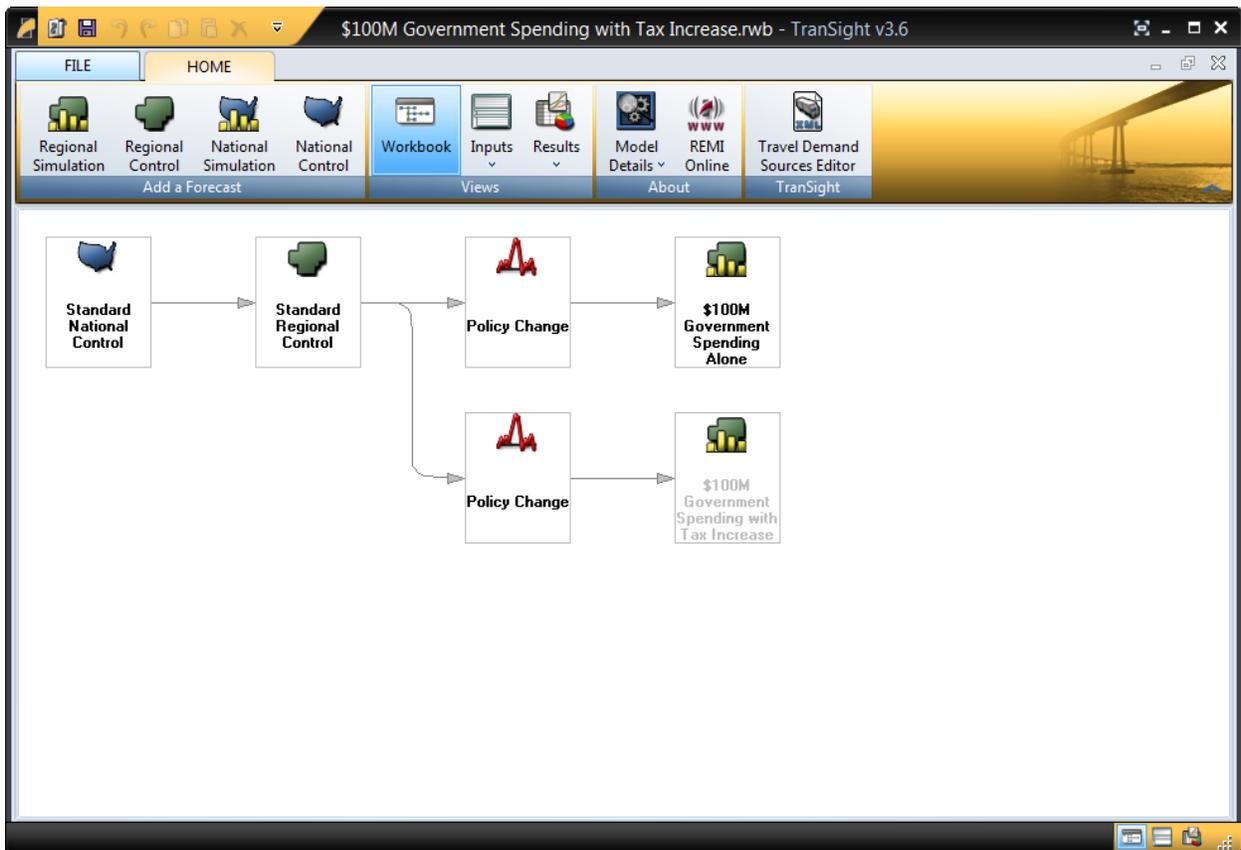
**Step 4:** Close and save this forecast to a new workbook. The Workbook view now shows the saved simulation. To copy the policy variables already selected to a new simulation, **right click** on the Policy Change box. This will open a menu with several options, choose **Duplicate**.



This will open an input box prompting for the name of the duplicated simulation. Give the simulation a meaningful name, in this case, **\$100M Government Spending with Tax Increase**



and click **OK**. A new forecast branch is now visible. The new forecast name is currently ghosted because the forecast has not yet been run.

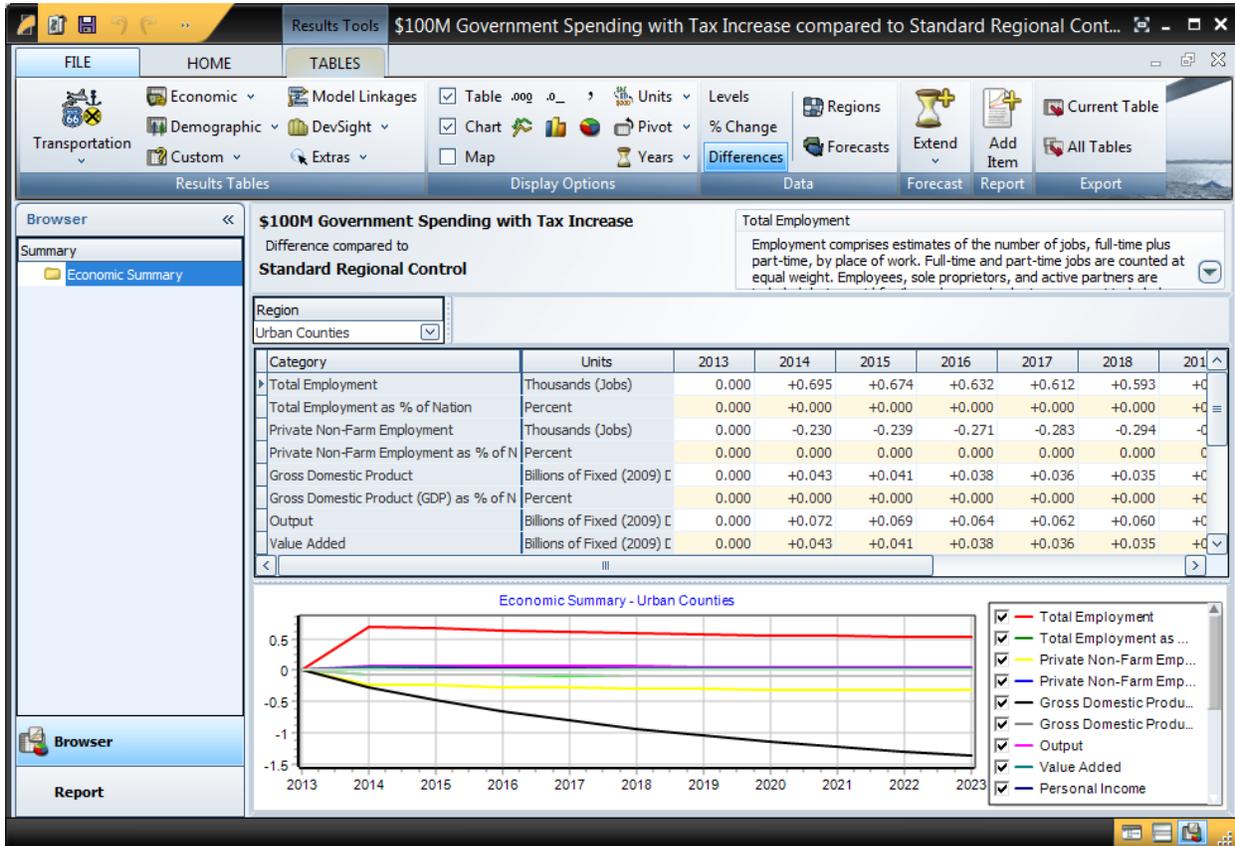


**Step 5:** Double click on the new Policy Change box in order to access the Policy Variable Inputs window. Since an exact copy of the policy changes from the first simulation was made, the Additional \$100M Personal Taxes policy variable is still inactive. To active this variable, click on the check box.

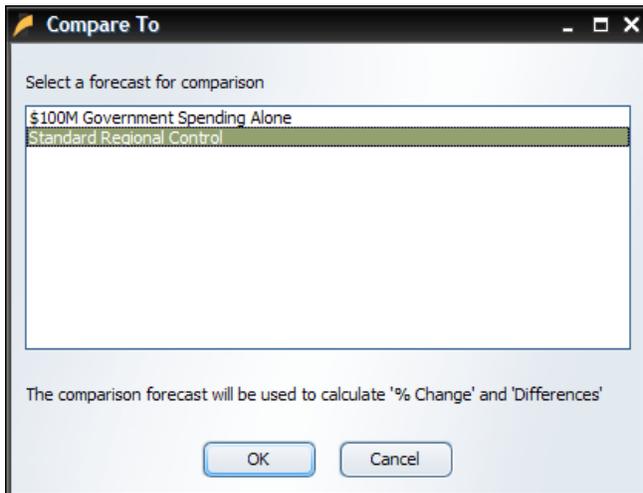
Policy Variable Inputs				
	Active	Edit	Category	Notes
	<input checked="" type="checkbox"/>		Composite (1 PV-s)	New Government Spending Topic
	<input checked="" type="checkbox"/>		Composite (1 PV-s)	New Consumer Taxes Topic

Change the run to year to 2023 (if it is not already the year displayed) and click **Run Now**.

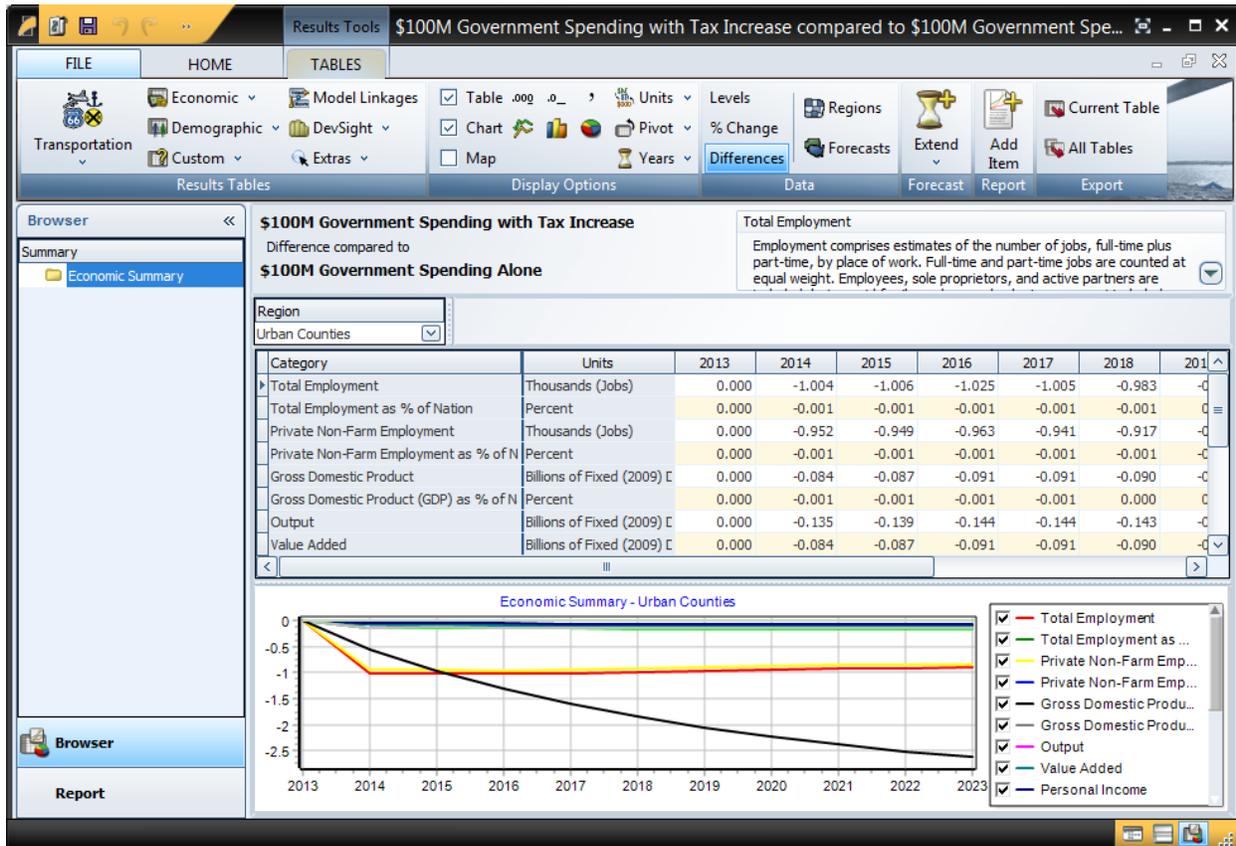
The results now displayed are net for both the additional \$100M of new government spending, and the additional \$100M of new personal taxes.



**Step 6:** You are now ready to analyze the results. To see the effect of just the increase in personal taxes, click on the Forecast button on the Data group of the Results tab ribbon, and select the Government Spending Alone forecast for comparison. Click OK.



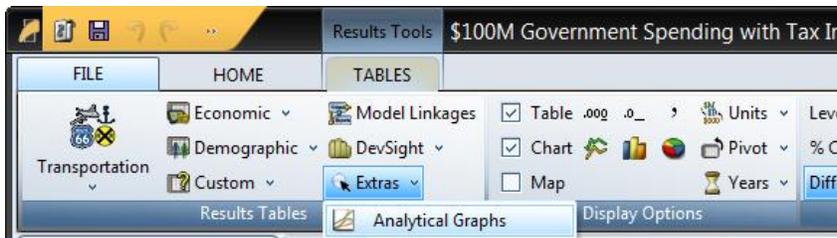
The Results now reflect just the additional taxes, which leads to a loss of jobs.



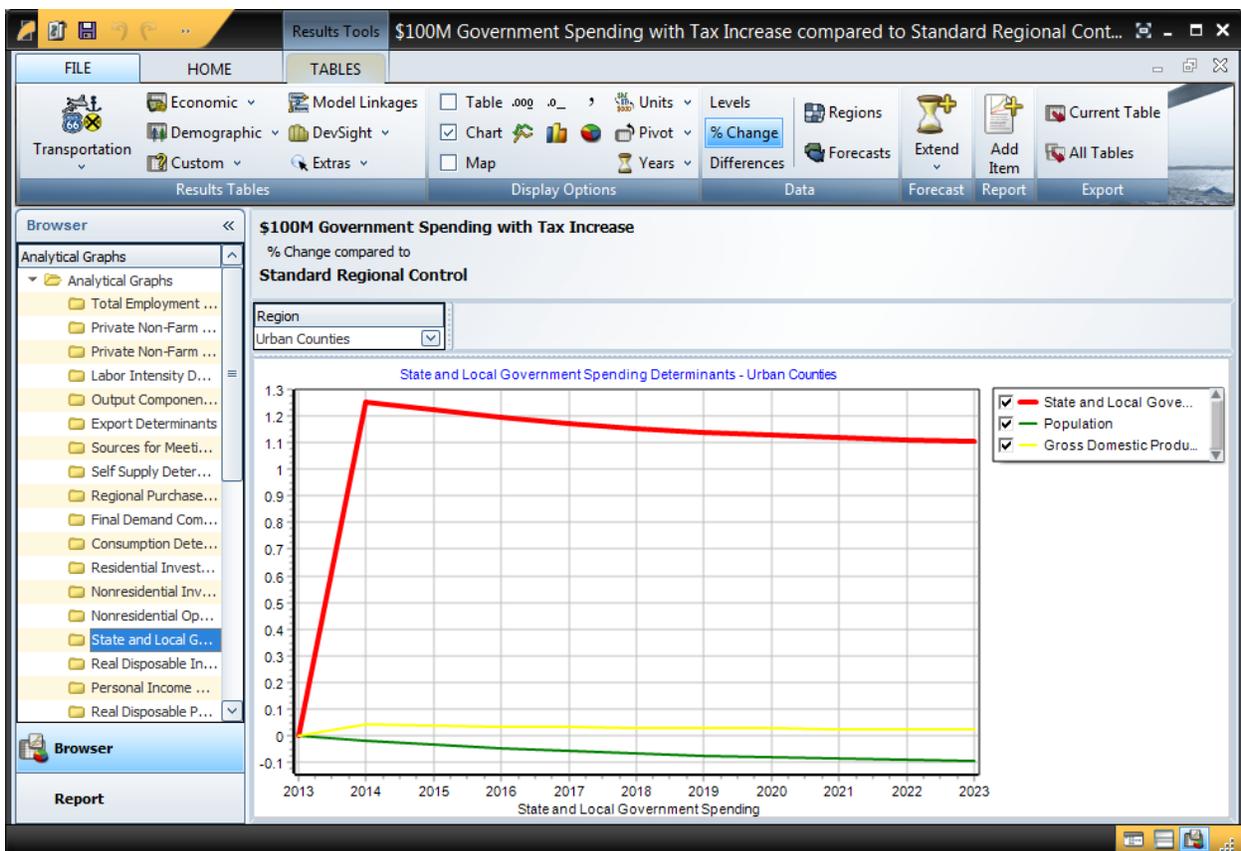
By going through the policy variable selection process just once, you have been able to generate results for three different simulations: government spending alone, government spending combined with additional personal taxes, and personal taxes alone. Each policy variable generates a change in many of the endogenous variables of the model and it is important to be able to understand how the final results of a simulation are influenced by the specific policy variables that are used. By seeing the effects of each policy variable change, you will be better able to explain the final result when all of the variables are combined.

## Using Analytical Graphs to Understand Results

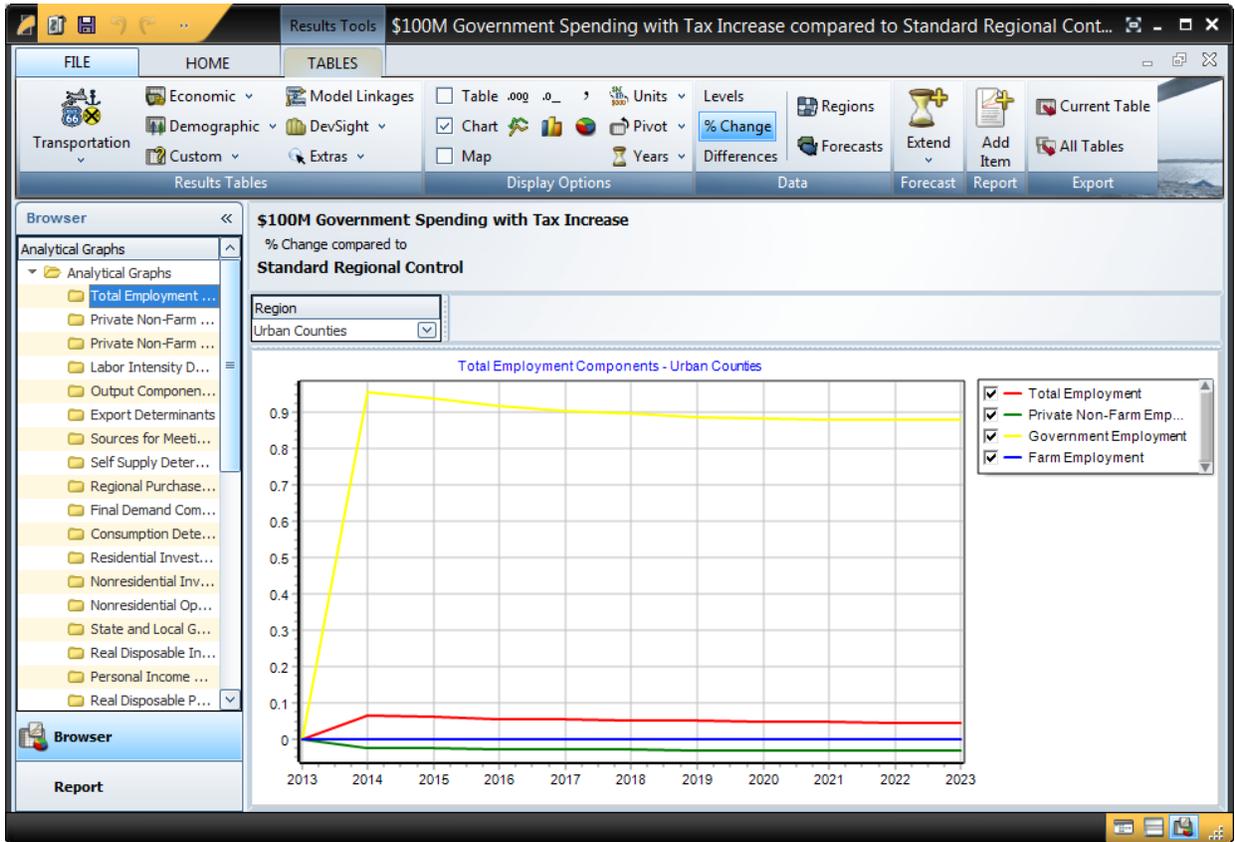
Analytical Graphs are organized to illustrate the main determinants of key variables of the model. By stepping through the graphs, you can quickly see the percent change in a key variable as well as that variable's main determinants, allowing you to isolate the primary cause and effects of the simulation changes. Analytical Graphs can be found in the **Results Tables** group under **Extras** and selecting **Analytical Graphs**.



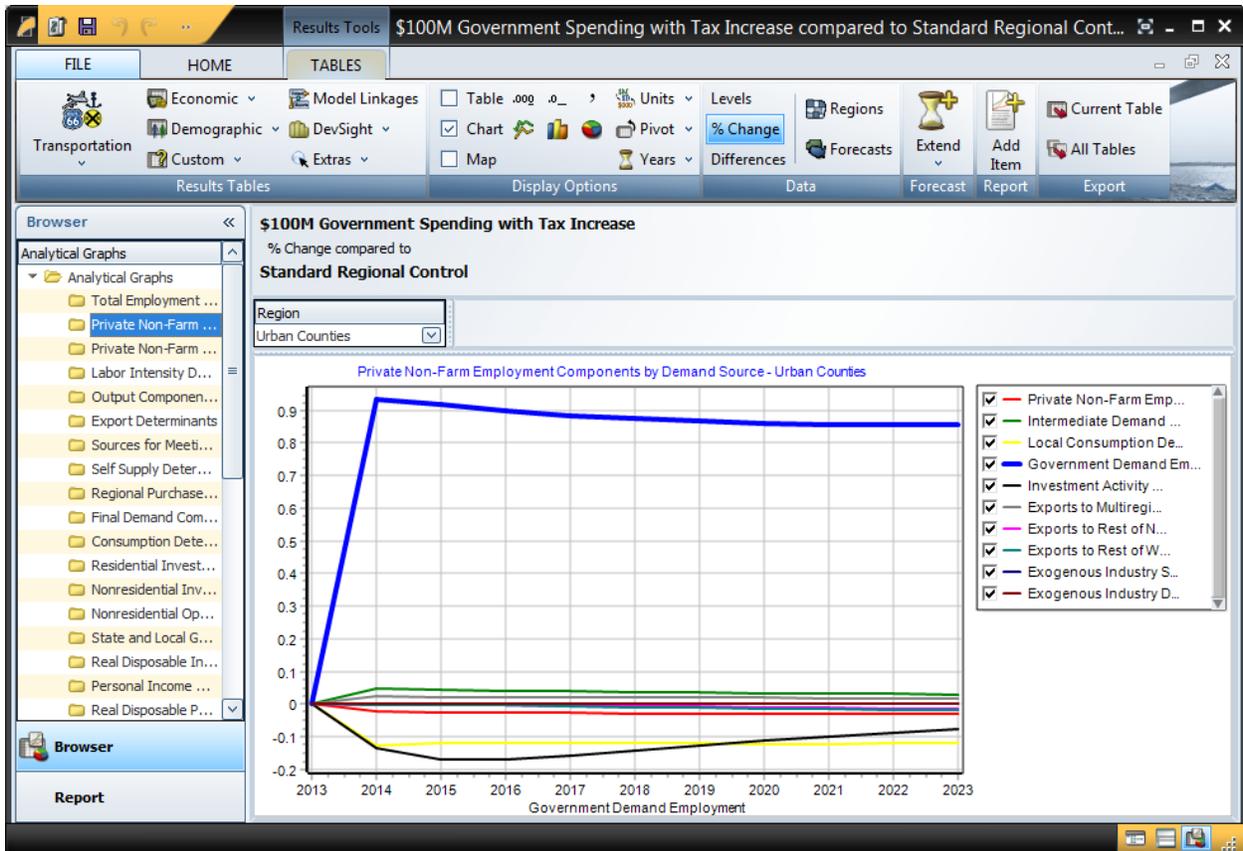
Looking at the **\$100M Government Spending with Tax Increase** simulation (compared to the **Standard Regional Control**), the **State and Local Government Spending Determinants** chart illustrates the total percent change to State and Local Government Spending, which is a combination of both the direct \$100M input as well as the indirect effect of a slightly higher population and economy (measured in Total GDP).



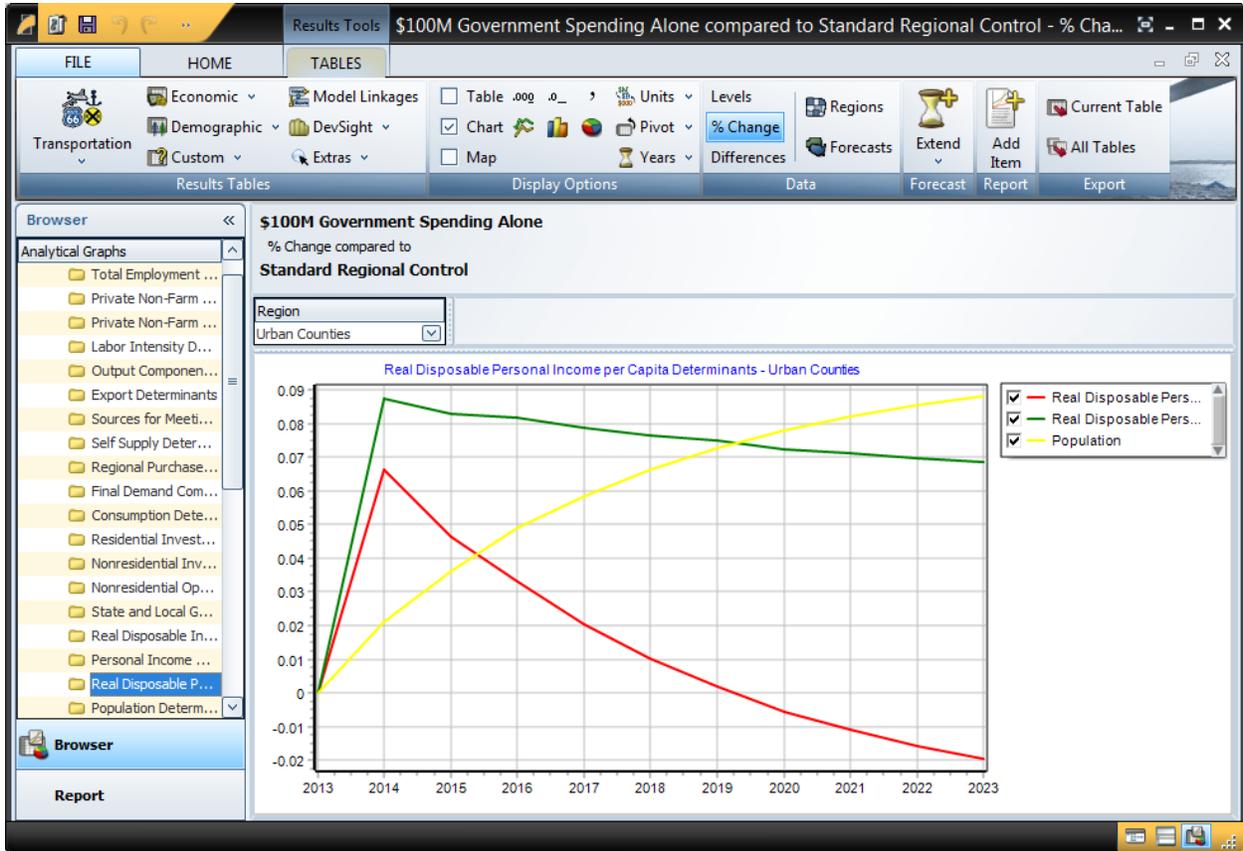
The effect on employment can be explained by viewing the **Total Employment Components** chart. A change in government employment leads the way, which is logical since the direct input was additional government spending, most of which, on average, is used to support employment. The change in Private Non-Farm Employment is the indirect effect of the additional government spending.



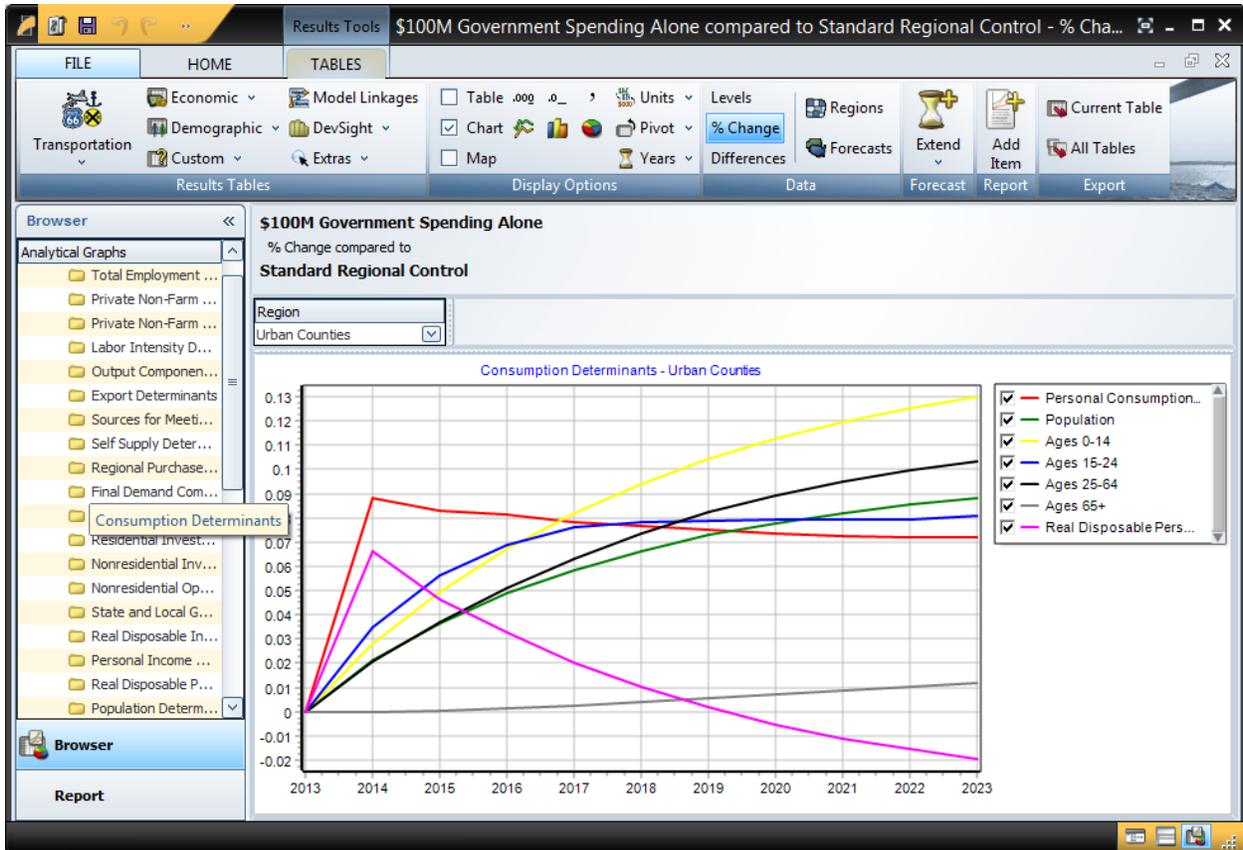
To better understand the change in Private Non-Farm Employment, you can look at the **Private Non-Farm Employment Components by Demand Source** chart, which shows the percent change in employment by type of demand. Consumption and Intermediate Demand are typically the largest components of demand, so these changes track the most closely to the overall change in Private Non-Farm Employment. The additional government spending led to an increase in consumption primarily due to the spending of compensation earned by the new government employees. The intermediate demand increased due to additional demand by consumers as well as direct spending of the government on supplies, etc.



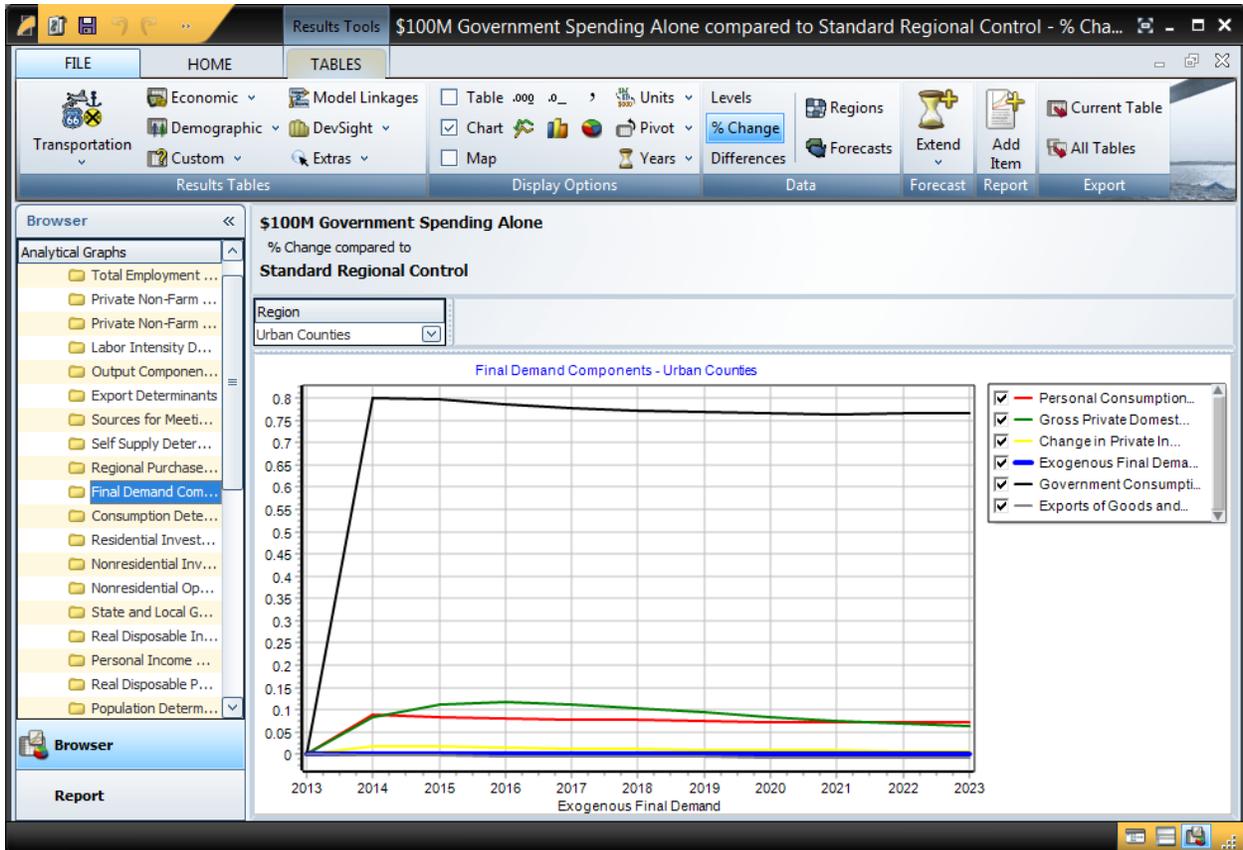
Looking at the **\$100M Tax Increase Alone** simulation (compared to the **Standard Regional Control**), the **Real Disposable Personal Income per Capita Determinants** chart illustrates the total percent change to Real Disposable Income, as well as the percent change in Real Disposable Income per Capita, which is also affected by the percent change in Population. Increasing personal taxes leads to additional outward flow of economic migrants (due to the increased cost of living in the area), which lowers the overall population, mitigating the percent change in Real Disposable Income per Capita compared to the percent change in Real Disposable Income.



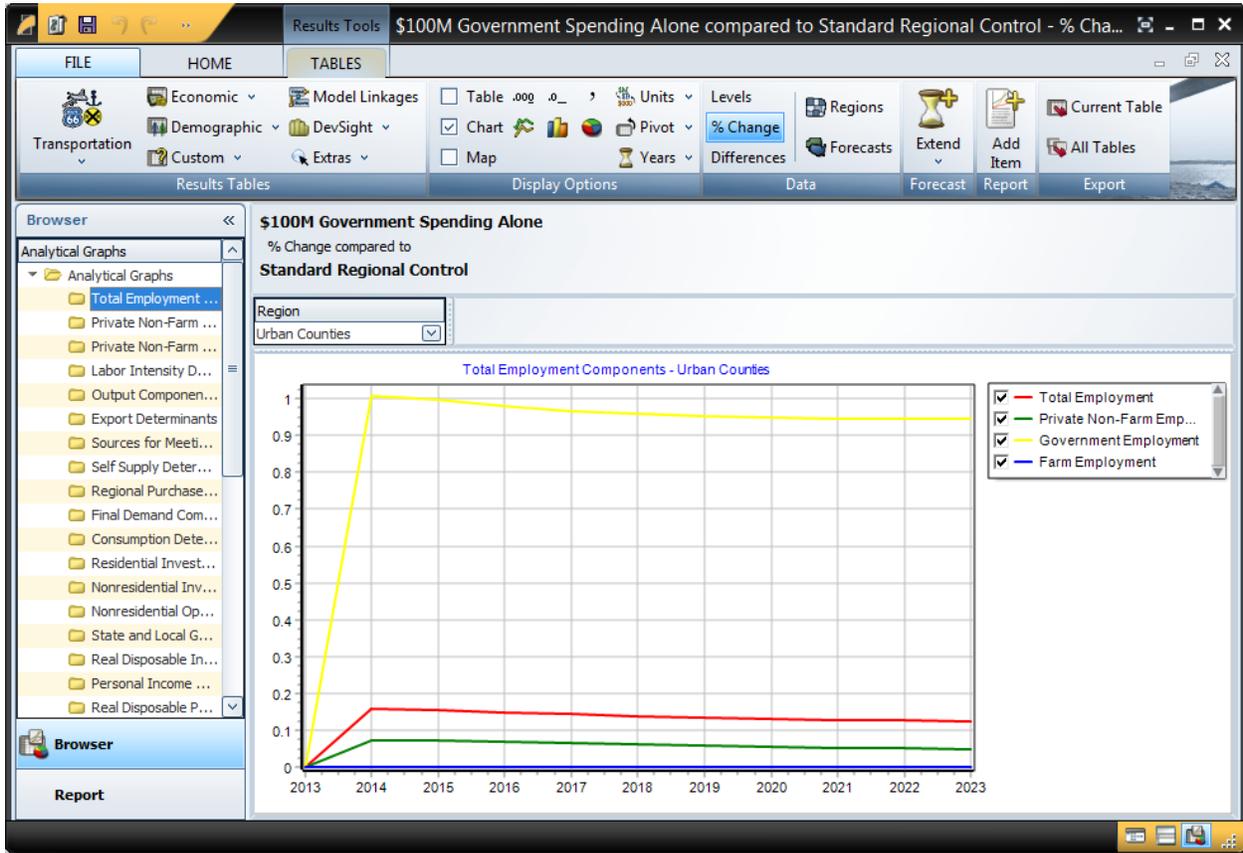
The **Consumption Determinants** chart shows the percent change in Consumption, as well as the primary causes for this, Population (by age cohort) and Real Disposable Income per Capita. A smaller population and less income per person result in less consumption.



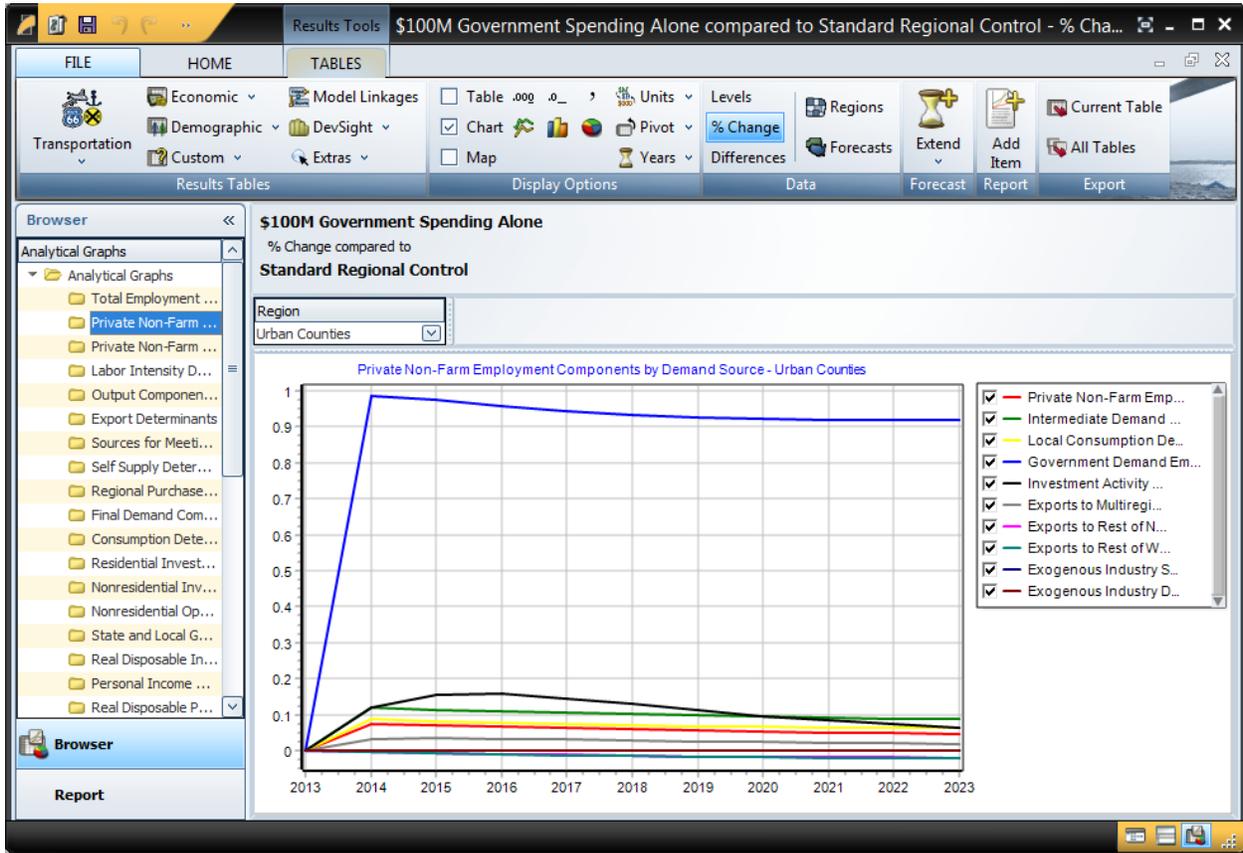
The **Final Demand Components** chart shows the percent change in major components of GDP. The overall negative effect on the economy (driven by less consumption) leads to less fixed investment over time, due to a smaller optimal capital stock.



The effect on employment can be explained by viewing the **Total Employment Components** chart. Private Non-Farm Employment shows the largest decrease in terms of percent change.



The overall loss of jobs is primarily explained by the decrease in demand for Consumption, Investment, and Intermediate goods.



## Moving the Tables to a Spreadsheet

To make more complex adjustments to several cells, move the data to a spreadsheet application.

1. Open your spreadsheet application (we use Microsoft Excel for demonstration purposes).
2. Switch to TranSight.
3. Select the cells you want to work with.

**Cost Per Gram**  
(\$ US)

	2010	2011	2012	2013	2014	2015	2016	2017
VOC	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128
NOX	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522
CO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SOX	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051
PM	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542

- Press Ctrl-C (or right-click and select **Copy**) to copy the cells. To also copy the row and column headers press Ctrl-N (or right-click and select **Copy with Names**)
- Switch to Excel.

Press Ctrl-V (or right-click and select **Paste**) to paste the cells into Excel.

A1

	A	B	C	D	E	F	G	H
1		2010	2011	2012	2013	2014	2015	
2	VOC	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	
3	NOX	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	
4	CO	0	0	0	0	0	0	
5	SOX	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051	
6	PM	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542	

- Modify the cells as needed.

B2

	A	B	C	D	E	F	G	H
1		2010	2011	2012	2013	2014	2015	
2	VOC	0.001344	0.001344	0.001344	0.001344	0.001344	0.001344	
3	NOX	0.005481	0.005481	0.005481	0.005481	0.005481	0.005481	
4	CO	20	20	20	20	20	20	
5	SOX	0.032036	0.032036	0.032036	0.032036	0.032036	0.032036	
6	PM	0.299691	0.299691	0.299691	0.299691	0.299691	0.299691	

- Select the cells in Excel.
- Press Ctrl-C to copy the cells.
- Switch to TranSight.
- Place the cursor in the topmost or leftmost of the cells you moved to Excel.

Note position of cursor

**Cost Per Gram**  
(\$ US)

	2010	2011	2012	2013	2014	2015	2016	2017
VOC	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128
NOX	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522
CO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

- Press Ctrl-V or right-click and select **Paste** to paste the cells back into TranSight.

**Cost Per Gram**  
(\$ US)

	2010	2011	2012	2013	2014	2015
<b>VOC</b>	0.001344	0.001344	0.001344	0.001344	0.001344	0.001344
<b>NOX</b>	0.005481	0.005481	0.005481	0.005481	0.005481	0.005481
<b>CO</b>	20	20	20	20	20	20
<b>SOX</b>	0.0320355	0.0320355	0.0320355	0.0320355	0.0320355	0.0320355
<b>PM</b>	0.299691	0.299691	0.299691	0.299691	0.299691	0.299691

## Getting Additional Help

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Help is available in the following forms:

- REMI Technical Support
- REMI's Web site, [www.remi.com](http://www.remi.com)

### Contacting REMI Technical Support

You may contact REMI Technical Support at 413-549-1169. Be sure to be sitting near your computer so a REMI support person can help you with your problem.

### REMI's Web Site

REMI's Web site, [www.remi.com](http://www.remi.com), contains a Frequently Asked Questions (FAQ) page, a glossary of terms, and extensive product documentation. There is also a listing of upcoming REMI conferences. You can also contact a member of the REMI staff anytime by sending an e-mail to [info@remi.com](mailto:info@remi.com).