





Version 4.0

Table of Contents

Table of Contents2
Welcome
What Is REMI TranSight?3
System Requirements
Installation4
Starting TranSight5
Using the New TranSight Interface
Forecast Navigation Screen6
Policy Variable Selector
Inputs List10
Forecast Options
Locating Other New Features12
Modeling a Transportation Scenario13
Travel Demand Study13
Importing Data
Enter or Adjust data manually15
Baseline and Adjusted Simulations and Computed Difference
The Add To Inputs List Button17
Simulation Parameters19
Cost Matrices
Additional Highway Inputs24
Modeling an Economic Scenario
Other Features and Usage Tips41
Cumulating Policy Variables and Understanding Results41
Selecting and Activating Variables41
Using Analytical Graphs to Understand Results48
Moving the Tables to a Spreadsheet53
Getting Additional Help55
Contacting REMI Technical Support55
REMI's Web Site

Welcome

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[®] 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⁺, 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

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

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

When you are ready to install REMI TranSight, insert the provided Disc into your disc drive. The InstallShield installation utility should run automatically. If it does not appear, select your discD 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 four 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.

Using the New TranSight Interface

The new 2.0 version of TranSight features a major redesign of the various forecast creation interfaces and the policy variable selector. In keeping up with the industry standard for Windows applications, the design of these interfaces has moved toward the use of smart tiles and has made TranSight much more tablet-friendly in the process.

Forecast Navigation Screen

While the home screen of TranSight will look familiar from the previous version, once you begin the process of creating a forecast (by clicking on either **Regional Simulation**, **Regional Control**, **National Simulation**, or **National Control**) you will experience our intuitive new tile design. Navigating to a policy variable via its topic, through a pre-built economic scenario, or with some other grouping like the model blocks, is now more user friendly, with all options on display instead of hidden in drop-down menus. At the forefront of the new forecast navigation screen, the Featured section highlights topics and tools that are likely to be used most often.



Another organizational improvement that we hope will simplify navigating to your most-used policy variables is the Favorites section. Right-clicking any tiles adds them to your Favorites (indicated with a star) where they can be dragged into any customized order.



Creating a custom scenario, which consists of any number of policy variables, in custom groups and with pre-selected options, can prove to be another very effective way of easily accessing all of the policy variables you use most. Favoriting the resulting custom scenario tile will make it even easier.

In TranSight 2.0, features such as BizDev and Custom Scenarios are located in the "More Scenarios" section of the forecast navigation screen.



Policy Variable Selector

Clicking on any tile that represents some number of policy variables will open up the policy variable selector in a new window. This selector window is split into several tabs that each represent a step in the process of defining exactly how your policy variable will enter into the model.



The first tab holds a list of logically grouped policy variables that can be selected. Search functionality has been added to this policy variable list to cut down on time spent looking through the longer lists of variables. Clicking a variable will show details about it and its options, as well as a diagram that depicts how the policy variable relates to other variables and fits into the model. After choosing a variable, clicking the **Select** arrow button will move the variable to the **Details** tab.

New Alphabetical	cal				
Variables	••• Details	••• Add to Editor	•••		Scenario Info
articipation R	ate				
Region (1) Rest of US Race Grouped All		Units Percent		Industry	C A A A A A A A A A A A A A A A A A A A
Gender Grouped All	Age 7 Grouped			Age 38 Age 39	~

The **Details** tab is where you decide what the exact form of the policy variable should be. There is now a hierarchical view of industry, commodity, occupation, and age cohort details available on this tab to allow for easier input of values at a more aggregate level. Once all of the options on the policy variable have been specified, you will be able to click the **Add to Editor** button to move the variable into the editing grid.

New Alphabetical Alphabetical Name New Alphabetical			_ = ×
Variables	•••	Edit Values	Calculator Spreader Scenario Info <u>C</u> ancel
Category Category Participation Rate	Detail Both Genders, All Races, Ages (7) Gender Male Female Race White-NonHispanic Other-NonHispanic Other-NonHispanic Other-NonHispanic Other-NonHispanic Hispanic Age 20 Age 21 Age 22 Age 22 Age 23 Age 24 Age 35 Age 36	RegionUnits201520162017Rest of USPercent555	2018 2019 2020 2021 2022 2023 2024 2025 5
<			>

The editor will allow you to input yearly values for each policy variable. One policy variable will be created for each option specified on the **Details** tab, unless you choose to group all details into one variable, which is depicted above for the age and race dimensions. Finished variables can be added to the forecast inputs list by clicking the final arrow button, **Add to Inputs**.

Inputs List

The forecast inputs list is a screen that displays which policy variables will be included as inputs to the model as it runs a simulation forecast. The policy variable import and export features are located on the inputs list. Importing in particular has seen big improvements, including an added ability to import policy variables from a REMI workbook file, an import preview window that allows for choosing which policy variables to import from a file and whether their yearly values or regions should be modified. Importing can also detect policy variable data problems before they happen and better handles each of the legacy import file formats.

		FILE		HOM	1E	Navigation								_ 6	2 🛛
	Sele Inpu	ct Ir	nputs List	Forecast Options	Result:	5		_	_	_	_	_	A	I	1.22
	Impo	ort Policy	E) Vari	(port iable Inputs	, ,										
F	Activ	/e Edi	t Gro	up											
F	Ξ[Image: A start and a start	Nev	v Alphabetical											
I.		Activ	e Vie	ew Category			Deta	il				Region		Uni	its
Ľ	Þ	•	C	Participation	on Rate		Both	Genders,	All Races, Age	s (7)		Rest of US		Per	rcent
L		<	_												-
L				Details Variat	bles										
L				Catego	ry	Detail		Units	2015	2016	2017	2018	2019	2020	
L				Participation	Rate	Male, White-NonHispanio	, Age 20	Points	0.03374015	0.03339169	0.03334461	0.03326337	0.03316743	0.03306697	=
L				Participation	Rate I	Male, White-NonHispanio	:, Age 21	Points	0.03374015	0.03339169	0.03334461	0.03326337	0.03316743	0.03306697	
L				Participation	Rate	Male, White-NonHispanio	:, Age 22	Points	0.03950649	0.0391693	0.03912045	0.0391196	0.03916188	0.03916434	
L				Participation	Rate	Male, White-NonHispanio	:, Age 23	Points	0.03950649	0.0391693	0.03912045	0.0391196	0.03916188	0.03916434	
L			- 11-	Participation	Rate	Male, White-NonHispanic	:, Age 24	Points	0.03950649	0.0391693	0.03912045	0.0391196	0.03916188	0.03916434	
L				Participation	Rate I	Male, White-NonHispanic	:, Age 35	Points	0.04506577	0.044/668/	0.044/848	0.04480527	0.04483662	0.04481296	
L				Participation	Rate I	Male, White-NonHispanic	, Age 36	Points	0.04506577	0.044/668/	0.044/848	0.04480527	0.04483662	0.04481296	
L				Participation	Data I	Male, Black-NonHispanic,	Age 20	Points	0.02931264	0.02900669	0.02896366	0.02896697	0.02898468	0.02898761	
L				Participation	Data I	Male, black-NonHispanic,	Age 22	Points	0.02931204	0.02592404	0.02690300	0.02690097	0.02552459	0.02555271	
				Participation	Rate I	Male, Black-NonHispanic,	Age 23	Points	0.03633365	0.03582404	0.03571453	0.03563127	0.03563468	0.03555271	
L				Participation	Rate I	Male, Black-NonHispanic,	Age 24	Points	0.03633365	0.03582404	0.03571453	0.03563127	0.03563468	0.03555271	
				< Participation	Data I	Vale_Black-NonHispanic	Age 35	Dointe	0.04107936	0.04080829	0.04085361	0.04080725	0.04005542	0.04097555	

Another new feature is the ability to inspect the converted versions of a given policy variable that will be the ones actually used by the model. Clicking on the magnifying glass icon on a policy variable in the Inputs List will open this converted variable window.

Forecast Options

Running a forecast has been moved to its own screen. There are frequently asked questions about the different options for running the relevant forecast right on this screen alongside the usual year selector and also closure options and iteration settings if they apply to the forecast being run. Simply click the **Run Forecast** button once you have selected your preferred options and the model will start calculating results, as indicated by the progress bar.

FILE HOME Navigation		. e x
Select Inputs Forecast Results Navigation		T
Forecast Name National Simulation 6	メ Run Forecast	
Run Years	Frequently Asked Questions	
= * 2015'2021'''''''''''''''''''''''''''''''	How do I use forecast years?	
Run forecast from 2021 to 2053	What happens to policy variable changes made in the years prior to the forecast start year?	
Closure Options	What are closure options?	$\overline{\mathbf{v}}$
Type Keynesian 🕑 Historically Observed	What is the Keynesian Response?	$\overline{\mathbf{v}}$
Keynesian Anticipatory Fed	What is the Anticipatory Fed Response?	\checkmark
Forecast Information Running a National Simulation (Based on Standard National	What is the Historically Observed Response?	
Control) for 33 years.	Can I set the number of years for the Federal Reserve Response time?	
V		

Locating Other New Features

There are some new preference options available under the **File** > **Preferences** menu. Regions can now be grouped so that results are displayed for only some of your models regions. Additionally, the map of your regions can now be customized to use a variety of different color schemes, thereby making the map better for visualizing regional differences in the results and also more colorblind-friendly.



The Model Details menu located on the home page of PI+ and also under File > Info contains two new interfaces. There is now a window for viewing all frequently asked questions about PI+ in one place and an option to view them by topic. There is also a window for referencing all of the PI+ model documentation using a built-in PDF viewer.

Modeling a Transportation Scenario

In REMI 2.0, the way to model a Transportation Scenario originating from an exogenous travel demand model (or data entered manually) is to click on **Travel Demand** in the forecast navigation screen, and then on **Travel Demand Changes**. 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.

	Travel Demand		_ — ×
	Baseline	^	Setting up the baseline Travel Demand data You can also choose to import from your own transportation model or an existing Travel Demand File.
	Import/Export		Please note that importing will overwrite any previously specified baseline VMT, VHT, and Trips data.
	Highway VMT Highway VHT		Model Type: Custom-Multi-Year
	Highway Trips		Import Baseline Travel Data Save to Travel Demand File (.tdd)
6	Transit VMT		Path to Data: None
٥	Transit VHT		
	Transit Trips		
	Adjusted 🔨		
۵	Import/Export		
0	Highway VMT		
Ō	Highway VHT		
	Highway Trips		
	Transit VMT		
	Transit VHI		
	General Changes 🔺		
3) \$	Emission Cost Per Gran Leisure Time Value	n 🗸	Add To Inputs List Cancel

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.

Select File				x
💭 🖓 🗸 🖉 🖉 🖉 🖉	ravel Demand 👻	✓ Search Travel De	mand	2
Organize 🔻 New folder			•	?
★ Favorites	Name	Date modified	Туре	
🧮 Desktop	AllZero.tdd	12/2/2016 1:12 PM	TDD File	
🚺 Downloads 😑	default.tdd	12/2/2016 1:12 PM	TDD File	
😌 Dropbox	Sample Baseline Travel Data.tdd	10/31/2012 12:58	TDD File	
🕮 Recent Places	Sample Expansion Project Travel Data.tdd	10/31/2012 12:58	TDD File	
🗥 SkyDrive				
汩 Libraries				
Documents				
🎝 Music				
E Pictures				
📑 Videos				
💻 Computer				
🚢 OS (C:)				
🖵 hdrv (\\ultima) (H:)				
🚽 jdrv (\\ultima) (J:) 👻	٠			
File name:		Travel Demand Da	ata file	•
		Open 🚽	Cancel	

- 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, select **Differences** and click **View**: Comparison: Differences View Graph

- 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 *Solution*. To Graph the Calculated Differences, click on the Graph 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 **Add to Inputs** 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 motorvehicle 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).

🛛 🖬 🤊 (° 🔹	Simulation Tools	gional Simulation 1	l - TranSight v3.6			≋ - □ ×
FILE HOME	INSERT					. 8 %
Parameters Travel Demand	Multi-Modal Highways	BizDev Custom Industry Y	Economic × Demographic × More Scenarios ×	Topics V Model Blocks V	Calculator	Import Export
Travel Demand Inputs	Transportation	Blueprints	Scenarios	Lists	Tools	
Forecast Name Regional Simulation 1 Baseline Standard Regional Contr Run Years - , 2013 Run forecast fro	ol 2060 (*) 2060	V Run Now				
Policy Variable Inputs						
Active Edit Category	Notes					
🕨 🕂 🗹 Imported (3 PV-s)	Travel Demand - Emissio	ons				
🕀 🗹 🖉 Imported (3 PV-s)	Travel Demand - Leisure	Time				
🕀 🕑 📝 Imported (3 PV-s)	Travel Demand - Safety	Costs				
🕀 🕑 🖉 Imported (9 PV-s)	Travel Demand - Opera	ting Costs				
🕀 🖃 🖉 Composite (27 PV-s)	Effective Distance					

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 I 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.

Г	Policy Variable Inputs														
	Active Edit Category			Category	Notes	lotes									
	Ξ	🖃 🔽 🌈 Imported (3 PV-s) Travel I			Travel Demand - Emissions	3									
	- [Π		1	Items			PV Id							
			Active	Category	Detail	Region	Unit Code	Variable Number	2013	2014	2015	2016	2017	201	
			\checkmark	Non-Pecuniary (Amenity) Aspect	Fotal	Urban Counties	2009 Fixed	D41	-1.5879688	-1.6041267	-1.6204902	-1.6370397	-0.8556967	-0.629	
			\checkmark	Non-Pecuniary (Amenity) Aspect	Fotal	Suburban Counties	2009 Fixed	D41	-0.2736343	-0.2767097	-0.2798211	-0.2829686	-0.0608103	-0.007	
			\checkmark	Non-Pecuniary (Amenity) Aspect	Fotal	Rural Counties	2009 Fixed	D41	-0.6371200	-0.6432622	-0.6494658	-0.6557314	-0.8437480	-0.813	
		<												>	
	Ð	\checkmark	1	Imported (3 PV-s)	Travel Demand - Leisure T	ime									
	÷	\checkmark	1	Imported (3 PV-s)	Travel Demand - Safety C	osts									
	÷	\checkmark	1	Imported (9 PV-s)	Travel Demand - Operating	g Costs									
	Ŧ	\checkmark	/	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 **Travel Demand** in the forecast navigation screen and then click **Travel Demand Parameters**. When updating these parameters make sure the units match those specified.



	Fravel Demand Pa	aram	ete	ers _ 🗆 🗙
	General	^	^	Import/Export Import or Export all of the Travel Demand Parameters (General, Highway, Transit).
	Import/Export			
۲	Emission Costs			Import Parameters from a file Export Parameters to a file
\$	Leisure Time Value			
	Highway	^		
08	Non-Fuel Operating	g		
iii	Vehicle Occupancy			
	Emission Rates			
T	Accident Rates			
1	Accident Values			
3	Fuel Costs			
	Fuel Rates			
≈	Advanced			
	Transit	^		
iii	Vehicle Occupancy			
	Emission Rates			
17	Accident Rates			
1	Accident Values			
	Advanced		~	Save

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 **Highway** in the forecast navigation screen and then **Effective Distance**. Next, choose to edit the values **As Cost Matrix**. This will take you to the Transportation Costs Editor.

Transportation Matrices Views ○ Commuting Costsi ● Regin ○ Accessibility Costsi ● Regin ○ Transportation Costsi ● Flat Create effective distance policy variable Control	on x Region on x Year /iew s by making direct change	/ear 1010 s to the cost matrix	Commuting Cc The Commut or between The effectiv matrix Ente	osts ting Costs policy variables modeled regions over the e distances can be modifi rr the chance in transport	erepresent the amount of commuter time savings within average workday. ed using policy variables or the transportation cost ation costs as a percent channe when using policy
Origin	Urban Counting	Suburban Counties	Dural Counting	Deat of Nation	
Ulahan Caunting	Urban Counties	Suburban Counties	Rurai Counties	ResconNation	
Suburban Counties	1	1	1	1	
Rural Counties	1	1	1	1	
Rest of Nation	1	1	1	1	
		Save Chang	es <u>C</u> ancel		

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 <u>Save Changes</u> 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 <u>Cancel</u> 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 screen under the **Highway** button of the forecast navigation screen, there are four additional categories of data inputs:

• Quick Study

A change in construction and operation & maintenance expenditures can be entered, as well as the funding source and the change in network speed.

- **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 in the forecast navigation screen, 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 New Design and Construction Scenario window, choose among groups called Investment, Construction Demand, Construction Sales/Employment, Professional and Technical Services Demand, and Professional and Technical Services Sales/Employment. These categories contain policy variables that are relevant to highway construction projects. Each policy variable contains a definition, description of the variable, and other relevant information that the user should know.

For this sample scenario, under **Construction Sales/Employment**, choose **Firm Sales (competes locally)** and then click **Select**. Click on the **Region** category to select **Suburban Counties**, and then click **Units**, select **Fixed National**, and then **2015** for the year and **Millions** for the units. Click **Add to Editor** and then **Edit Values**. Enter in the amount of expected changes in sales for the construction industry where firms compete locally.

Highway Construction Design and Con Name Highway Construction	nstruction Sce	nario			_ = ×
Variables	•••	Edit Values		Calculator Spreader	Scenario Info Cancel
Category	Detail Regio	n Units uunties 2015 Fixed National \$ (M)	2015 2016 2017 0 10 10	2018 2019 2020 10 10 10 10	2021 2022 2023 20 10 10 10 10 10
()]			>

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.

Row Calculation
Fill Adjust Scale Interpolate Growth Anticipate Annualize
Fill the selected range with a single value
Value:
Start Year End Year
Concel Automotically show only data

- 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.

Row Calculation	×
Fill Adjust Scale Interpolate Growth Anticipate Annualize	
Fill the selected range with a single value	
Value: 10	
Start Year End Year	
)
Automatically show calculator	

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

Editor														
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	0	
<	Ш													>
			Add to I	nputs Lis	st)	<u>C</u> ancel								
														ß "

After entering values into the editor, click **Add to Inputs** button at the top 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.

	Policy Variable Inputs								
Γ	Active	Edit	Category	Notes					
	+ 🗸	1	Imported (3 PV-s)	Travel Demand - Emissions					
	∃ 🗹	1	Imported (3 PV-s)	Travel Demand - Leisure Time					
	± 🗹	1	Imported (3 PV-s)	Travel Demand - Safety Costs					
	∃ 🗹	1	Imported (9 PV-s)	Travel Demand - Operating Costs					
	+ 🗸	1	Composite (27 PV-s)	Effective Distance					
Þ	€ 🗸	1	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 $\boxed{\bigcirc}$. 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 $\boxed{}$, 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. Click **Forecast Options** in the top of the screen to change the 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". Also, you can select different start and end years, if desired.

2000	Forecast Tools		Highway Simulation 1	
FILE	HOME	Navigation		
Select Inputs Inputs List	Forecast Options			
Forecast Na	ame Highway Simulatio	on 1		جڑ Run Forecast
Run Years				Frequently Asked Questions
2015	205	==== + 3' 2060		How do I use forecast years?
Run fore	ecast from 2016 to 205	What happens to policy variable chang		
Forecast Inform	ation			
Running a Regiona Control) with 3 reg The forecast cont	al Simulation (Based on gions for 38 years. ains 1 policy variable(s)			

If you decide to create a new control forecast, you will be prompted on which control to run a new simulation once either **Regional Simulation** or **National Simulation** are selected from the Workbook View (the screen seen when opening TranSight).

When ready to run the simulation, click the **Run Forecast** 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.

Running			
	44	%	
Elapsed Time:	0:02	Year: 2032	e
Estimated Time Remaining:	0:04		Cancel

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.

This forecast has not been saved. Do you want to save it

Yes

No

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.

Cancel



now?

Confirm

rs the d.	Levels % Change	Change		
	Differences	For	recasts	
Transporta	tion	nic × raphic × n ×	💦 Model 🍈 DevSig 🔍 Extras	Linkages ht ~ ~
	Results	Tables		

Current Table
😽 All Tables
Export

🏅 Save As	-					x
🔾 🗸 🗸 🕹 🖉 🖉 🖉	 Workbooks 	- - - + j	Search	Workbooks		م
Organize 🔻 New folder						?
☆ Favorites	Name	Date modifi	ied	Туре		Size
📃 Desktop	Travel Demand Test.rwb	11/16/2016	5:51 PM	RWB File		(
📕 Downloads	Workbook1.rwb	12/20/2016	1:36 PM	RWB File		1
💱 Dropbox 📃						
🖳 Recent Places						
ive SkyDrive						
Calibration						
Documents						
Pictures						
Videos						
🖳 Computer						
🚢 OS (C:) 👻 🗸		III				+
File name: Highway Stud	у					•
Save as type: REMI Workbo	ok (*.rwb)					-
Hide Folders			Sav	e [Cancel	

Your Workbook view will now display the Highway Study simulation labeled "Highway Study".



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 **More Topics** tile in the forecast navigation screen and then **Employment and Sales**.



The New Employment and Sales Topic window appears. Give the scenario a meaningful name, such as "XYZ Plant Shutdown." Read the scenario description for helpful information and hints applicable to the selection.



Select **Employment** and then click **Select**. Next, under **Options**, select either **Firm (competes locally)**, **Industry (Exogenous Production)**, **Industry (International Exports)**, or **Industry (Exogenous Production) without Output Demand Growth Based on Productivity Growth**. A description of each appears in the information box below. 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 (competes locally)**.

				2 X
Variables	Details			Scenario Info Cancel
mployment				
Options Firm (competes locally)		Units		Options Select an Employment Type Firm (competes locally) Industry (Exogenous Production)
Industry				Industry (International Exports) Industry (Exogenous Production) without Output Demand Growth Based on Productivity Growth This option assumes that the firm entering or leaving the home area (or expanding or contracting in the home area) will change the share for home area by augmenting or
Region				diminishing that region's share by a percentage that allows for the displacement or augmentation of the sales of other firms competing with the firm in question in the home or multregional markets in the model. The future employment of the firm in question will be dependent on the rate of growth of the industry in the baseline and any changes in its competitiveness in the markets served by that firm.

In the **Industry** box, choose **Firm (competes locally)**, since for this simulation we will assume we know the number of direct jobs being lost. In this example, assume it is machinery manufacturing, so select **Machinery Manufacturing** under **Industry**. 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 **Add to Editor** and then **Edit Values** buttons. 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.

XYZ Plant Shutdown Comparison Comparison	I Sales Topic		_ = = :
Variables De	etails Add to Editor	•••	Scenario Info Cancel
Options Firm (competes locally)	Units Units	Select a Unit Type Share of Employment Units Thousands	
Industry (1) Machinary manufacturing			

To do this, highlight the range of cells, in this case 2016-2034, 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**.

Row Calculation
Fill Adjust Scale Interpolate Growth Anticipate Annualize
Fill the selected range with a single value
Value: -675
Start Year End Year
Automatically show calculator

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

🖉 XYZ Plant Shutdow	n													-	□ ×
Employ	ment and Sale														
Name XYZ Plant Shute	Name VYZ Plant Shutdown														
:= .			1		•••								?	>	<
Variables	Variables Details		Edit Values	<u>A</u> do	l to Inputs				Calc	ulator	Spreade	er S	enario Info	<u>C</u> an	cel
Category	Detail		Region	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
🕨 🗲 🗙 Employment	Firm (competes locally): Ma	Firm (competes locally): Machinery man		Units	0	-675	-675	-675	-675	-675	-675	-67	-675	-675	-€

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

Policy Variable Inputs										
Active Edit Group	xctive Edit Group									
🖃 🗹 📝 XYZ Plant Shutdown	E 📝 🖉 XYZ Plant Shutdown									
Active View Category	Detail	Region	Units							
Employment	Firm (competes locally): Machinery manufacturing	Urban Counties	Units							
				>						

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 2. 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 2, 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).

FILE	E	HOM	E	Navigation						
		Les	R							
Select Inputs	Inputs List	Forecast Options	Results							
_	Nav	igation								
		_				-A"				
For	ecast Nar	ne XYZ Plar			Run Forecast					
Run Year	s					Frequently Asked Questions				
⊡ ()= 2015			2053	+ 2060		How do I use forecast years?				
	Run fored	ast from 20	15 to 2053			What happens to po	licy variable cha			
Forecast	Informa	tion								
Running a Control) v The forec	Regional vith 3 regional ast contai	Simulation (E ons for 39 ye ns 1 policy v								

When ready to run the simulation, click the **Run Forecast** 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.

🖊 Running		_ = ×
	57 %	
Elapsed Time:	0:05	
Estimated Time Remaining:	0:04	Cancel

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 multiregion 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.

Confirm	×
1	This forecast has not been saved. Do you want to save it now?
	Yes No Cancel

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

Save As	-	0.00	1		-		x
🕞 🕞 🗸 🚺 « Dat	a 🕨 Userdat	a ▶ Workbooks		✓ Search	Workbooks		Q
Organize 🔻 Nev	v folder				(?
☆ Favorites	^	Name		Date modified	Туре		Siz
📃 Desktop		Highway Study.rwb		12/20/2016 2:00 PM	RWB File		
惧 Downloads	E	Travel Demand Test.rwb		11/16/2016 5:51 PM	RWB File		
😻 Dropbox		Workbook1.rwb		12/20/2016 1:36 PM	RWB File		
📃 Recent Places							
\land SkyDrive							
➢ Libraries ➢ Documents ➢ Music ➢ Pictures ☑ Videos							
S (C)	-						
File name:	XYZ Plant Sh	utdown					
Save as type:	REMI Workbo	ok (*.rwb)					
Alide Folders				Sav	e	Cancel	

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

	X V		XYZ Plant Shuto	down.rwb - REMI TranSight v4.0	
FILE	HOME		_		- 6 X
Regional Simulation Contro Add	al National National Control	Workbook Inputs Results	Model REMI Details ~ Online About	Travel Demand Sources Editor TranSight	
	-	4			
Standard National Control	Standard Regional Control	Policy Change	XYZ Pla Shutdor	ant wn	

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 **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 **More Topics** tile and select **Government Spending**. In the "New Government Spending Topic" window, click on **State and Local Government Spending** and click **Select.** Under **Detail**, click **State Government**. In the **Region** box, choose the **Urban Counties** region. Then

choose the appropriate units, in this case **2015 Fixed National Millions**. Click **Add to Editor** and then **Edit Values**.

New Government Spending Topic Government Spending Topic Name New Government Spending Topic Variables Details	Add to Editor Edit Values	- □ ? × Scenario Info gancel
Detail (1) State Government Options	Units 2015 Fixed National \$ (M)	Select a Unit Type Share of State and Local Government Spending Fixed National Chained National Nominal Definition Fixed National is a form of real (constant) dollars pegged to a specific year where the values are adjusted for national inflation (enabling comparison of quantities as if prices had not changed). Fixed dollars are additive (the aggregate totals equal the sum of the detail). Year 2015
Region (1) Urban Counties		Scale Units Thousands Millions Billions

Enter a value of 100 for each year for 10 years, beginning in 2015 (\$100 million per year from 2015-2024. Then click the **Add to Inputs** button.



Step 2: To add the second policy variable, click the **Select Inputs** button on the top left of the Inputs List View, select **More Topics**, and then **Consumer Taxes**. In the **New Consumer Taxes Topic** window, click on **Personal Taxes** and click **Select**. Under the **Region** box, select the **Urban Counties** region. Then choose the appropriate units, in this case **Fixed National 2015 Millions**. Click **Add to Editor**, and enter a value of 100 for the same years as the last policy variable (2015-2024). Then click the **Add to Inputs** button.

🖉 New Con	isumer Taxes 1	lopic														-	ΞX
Co	nsume	xes Topi															
Name New	Name New Consumer Taxes Topic																
i=			-		1		•••						•	•	?	>	<
Variables		-	Details		Edit Value	es <u>A</u> d	d to Inputs				Cal	culator	Spread	ler	Scenario Info	<u>C</u> a	ncel
	Category	Detail	Region	Un	its	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
• ← X P	ersonal Taxes	Total	Urban Counties	2015 Fixed Na	ational \$ (M)	100	100	100	100	100	100	100	100	10	0 100	0	

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 2024 since we are only interested in a 10 year time horizon.



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

28 🗄 🗅 🔹	Forecast Tools Results Tools	\$100M Government	Spending A	Alone cor	npared to	Standar	d Regiona	al Control	- Differe	? 🗉 _	
FILE HOME	Navigation TABLES									-	6 X
Ecor	nomic 👻 🛣 Model Linkages	✓ Table .000 .0_ ,	🐞 Units 👻	Levels	E For	erasts	74 []		urrent Table		
Dem 😳 😣 🙀 Dem	nographic 👻 🍈 DevSight 👻	🗹 Chart 🎋 脂 🕥	Pivot 🗸	% Chang	e		<u>ک</u> ا		unent rubie	T	
Inputs V Cust	tom 👻 🔍 Extras 👻	Map	🔀 Years 👻	Differenc	es Reg	gions 🗸	Extend A	iem	ll Tables	-	
Inputs Res	ults Tables	Display Optio	ns		Data	F	orecast Re	port	Export	-	1
Browser « \$1	00M Government Spending Alo	one	ſ		Total Employ	ment					
Summary Dif	fference compared to				Employment place of work	comprises e k. Full-time a	stimates of th Ind part-time j	e number of j jobs are coun	obs, full-time ; ted at equal v	plus part-time /eight. Emplo;	yees,
Economic Summary	andard Regional Control				sole propriet	ors, and act	ive partners a	re included, b	out unpaid fam	nily workers a	nd 🔽
Reg Urba	Region										
Ca	ategory	Units	2015	2016	2017	2018	2019	2020	2021	2022	202
▶ To	otal Employment	Thousands (Jobs)	+2.004	+2.120	+2.145	+2.117	+2.058	+1.996	+1.940	+1.879	+
Pr	rivate Non-Farm Employment	Thousands (Jobs)	+0.943	+1.037	+1.057	+1.028	+0.973	+0.914	+0.862	+0.811	+
Po	opulation	Thousands	+0.373	+0.668	+0.920	+1.144	+1.333	+1.491	+1.624	+1.731	+
La	abor Force	Thousands	+0.381	+0.619	+0.793	+0.869	+0.953	+1.011	+1.052	+1.085	+
- Gr	ross Domestic Product	Billions of Fixed (2009) E	+0.150	+0.161	+0.165	+0.164	+0.161	+0.157	+0.153	+0.150	+
Va	alue Added	Billions of Fixed (2009) E	+0.150	+0.161	+0.165	+0.164	+0.161	+0.157	+0.153	+0.240	+
											>
		Economic Sum	mary - Urban C	ounties							
2.2	2								🗕 🗕 Total E	mployment	
2	2								 Private Reside 	Non-Farm E nce Adjusted	mp 1 E
1.8	3							Í.	🗸 — Popula	tion	
1.6	6								- Labor F	⁻ orce Domestic Pro	du
1.4	4								 Output 	Domestic Pre	
1.2	2								- Value A	Added	- 11
									 Person Dispos 	al income able Person:	al
								Ē	- Real D	isposable Pe	rs
0.0								[[PCE-P	riceIndex	
0.6											
0.4											
Browser 0.2	2										
Report	2015 2016 2017	2018 2019) 2020) 2(021	2022	2023	2024			
1 out of 2 policy variable(s) activ	ve. Not Saved C:\Users\j	jeffreyd\Desktop\Q/	Demo - C	ity, Subu	rbs & Rur	al (TS-DI	4) - 3 Re	gion 70 Se	ector Mode	i 🖬 🗐	<u>1</u>

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**.

	Workbook2.rwb - REMI TranSight v4.0	2 🗉 🗖 🏹
FILE HOME		- F X
Regional Regional National Simulation Control Add a Forecast	Workbook Inputs Results Model REMIL Details × Travel Demand Sources Editor Views About Transight	I
Standard National Control	Polics Open Duplicate Duplicate With Results Delete Rename Compare Run This Forecast Run All Forecast	

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.

I	Name new Forecast	×
	Please select new name for the copy of forecast "\$100M Government Spending Alone". \$100M Government Spending with Tax Increase	
	OK Cancel	

The new forecast name is currently ghosted because the forecast has not yet been run.

2 🛯 🖬 🖻 🖥 🛪 🔻	Workbook2.rwb - REMI TranSight v4.0	2 🗆 🗖 🔀				
FILE HOME		. 5 %				
Regional Regional National National Simulation Control Add a Forecast	Workbook Views Workbook Views Workbook Workbook Views Views Workbook Views Workbook Views Workbook Views Workbook Views Workbook Views Workbook Views Workbook Views Workbook Views Views Workbook Views Workbook Views Workbook Views Views Workbook Views Workbook Views					
Standard National Control Policy Change Government Spending Alone						
Policy Change Storment Spending with Tax Increase						

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								
Г	Active	Edit	Category	Notes					
	+ 🗸	/	Composite (1 PV-s)	New Government Spending Topic					
I		1	Composite (1 PV-s)	New Consumer Taxes Topic					

Change the run to year to 2024 (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.

	Forecast Tools Results Tools	\$100M Government	Spending	vith Tax I	ncrease co	ompared	to Standa	ard Regio	nal Contr	? 8 .	
FILE HOME	Navigation TABLES		. spending i			Simpared					6 X
Back to Inputs	Economic × 👔 Model Linkages Demographic × 🏠 DevSight × Custom × 🕟 Extras ×	 ✓ Table .000 .0_ , ✓ Chart 🎋 🏥 ✓ Map 	∰ Units × Pivot × ∑ Years ×	Levels % Chang Difference	e 🔛 Reg	ecasts jions v	Extend A	Add 🚱 A	urrent Table II Tables		
Inputs	Results Tables	Display Optic	ns		Data		Forecast Re	port	Export	and the second	Contraction of the local division of the loc
Browser « Summary Economic Summary	ith Tax Increase	(Total Employi Employment of place of work sole proprieto	ment comprises e c. Full-time a ors, and act	estimates of th and part-time j tive partners a	e number of j jobs are coun ire included, b	obs, full-time ted at equal v out unpaid fan	olus part-time reight. Emplo illy workers a	e, by ∧ yees, nd ∨	
	Category	Units	2015	2016	2017	2018	2019	2020	2021	2022	202 ^
	Total Employment Private Non-Farm Employment	Thousands (Jobs) Thousands (Jobs)	+0.428	+0.343	+0.267	+0.254	+0.271	+0.297	+0.324	+0.346	+
	Residence Adjusted Employment	Thousands	-0.574	-0.616	-0.758	-0.816	-0.84/	-0.866	-0.880	-0.8//	1
	Labor Force	Thousands	-0.443	-0.625	-0.790	-0.898	-0.999	-1.080	-1.151	-1.200	-
	Gross Domestic Product	Billions of Fixed (2009) [+0.024	+0.017	+0.010	+0.010	+0.012	+0.014	+0.017	+0.020	+
	Output	Billions of Fixed (2009) [+0.034	+0.023	+0.013	+0.013	+0.016	+0.021	+0.027	+0.031	+
	Value Added	Billions of Fixed (2009) [+0.024	+0.017	+0.010	+0.010	+0.012	+0.014	+0.017	+0.020	+~
											<u>></u>
	0.4 0.2 0 -0.2 -0.4 -0.6			ounties				य य य य य य य		mployment Non-Farm E Ince Adjuster tion Force Domestic Pre	imp d E odu
	-0.8 -1 -12						_		 Person Dispos Real D 	al Income able Person isposable Pe	al ers
	-1.4 -1.6 -1.8								- PCE-P	riceIndex	
Browser	-2 -2.2 -2.4										
Report	2015 2016 2017	2018 201 To	9 202 otal Employmen) 2 t	021	2022	2023	2024			
2 policy variable(s) active.	Saved C:\Users\jeffreyd\Des	ktop\QA\TS-DMwin1	Demo - C	ity, Subu	rbs & Rur	al (TS-D	M) - 3 Re	gion 70 Se	ector Mode	el 📼 🚍	<u>1</u>

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.

🔎 Compare To 📃 🗖 🗙
Select a forecast for comparison
\$100M Government Spending Alone Standard Regional Control
The comparison forecast will be used to calculate '% Change' and 'Differences'

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 and other related expenditures.

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.

	2010	2011	2012	2013	2014	2015	2016	2017
/0C	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128
VOX	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
бОХ	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051	0.03051
РМ	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542	0.28542

- 4. 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**)
- 5. Switch to Excel.

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

	A1	•	()	f _x				
	А	В	С	D	E	F	G	Н
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	со	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	
7								

6. Modify the cells as needed.

	B2 • (* 5x 0.001344										
	А	В	С	D	E	F	G	Н			
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	со	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				
7											

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

			Note po	Note position of cursor						
Cost Per Gram (\$ US)										
	2010	2011	2012	2013	2014	2015	2016	2017	Т	
VOC	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.00128	0.0	
NOX	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.00522	0.0	
CO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.0	

11. 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					
VOC	0.001344	0.001344	0.001344	0.001344	0.001344	0.001344					
NOX	0.005481	0.005481	0.005481	0.005481	0.005481	0.005481					
CO	20	20	20	20	20	20					
SOX	0.0320355	0.0320355	0.0320355	0.0320355	0.0320355	0.0320355					
PM	0.299691	0.299691	0.299691	0.299691	0.299691	0.299691					

Getting Additional Help

Help is available in the following forms:

- REMI Technical Support
- REMI's Web site, <u>www.remi.com</u>

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, <u>www.remi.com</u>, 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.