

Transport

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The transportation model may eventually consist of a module that represents total demand for transportation services in countries and regions and of additional modules that represent how individual societies meet individual and commercial transportation needs. At this stage, however, the transportation module focuses exclusively on annual sales of cars and trucks.

To read more about the transportation module, see the links below.



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Transportation Flow Charts

Overview

The transportation model may eventually consist of a module that represents total demand for transportation services in countries and regions and of additional modules that represent how individual societies meet individual and commercial transportation needs. At this stage, however, the transportation module focuses exclusively on annual sales of cars and trucks.

We have developed two approaches to forecasting those sales (a total of four options for the user). GDP per capita at purchasing power parity is the primary driver of sales per capita in most of those options (in one case total GDP drives total sales, see Approach 2). Values of the indices for survival/self-expression and traditional/secular-rational values may join GDP per capita or GDP in determining the annual sales of cars and trucks.

For more, please read the links below.

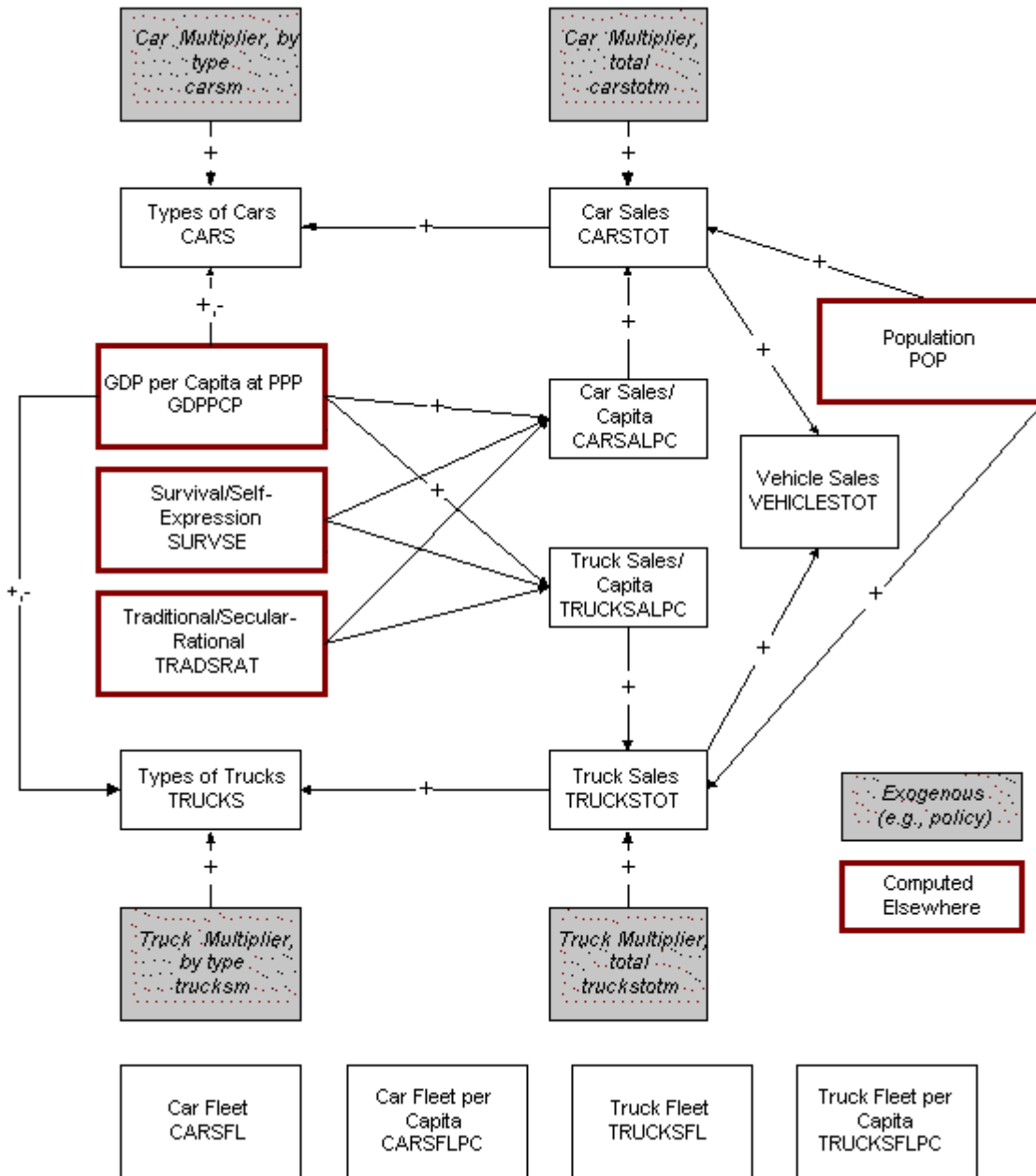
Cars and Trucks

As the equations elaborate, there are two general approaches and four specific options for determining the annual demand of countries/regions for cars and trucks and therefore the annual new sales of those vehicles.

GDP per capita at purchasing power parity is the primary driver of sales per capita in three of those options (in one case total GDP drives total sales, see Approach 2). Values of the indices for survival/self-expression and traditional/secular-rational values may join GDP per capita in determining the annual per capita sales of total cars and trucks.

Given per capita sales and population it is easy to compute total annual car and truck sales. Functions that indicate whether individual types of cars or trucks are "inferior" or "superior" goods, that is whether they decrease or increase with incomes, then determine how total car and truck sales are split across individual categories of cars and trucks.

The following flow is a general representation of the first approach (sales per capita determined by GDP per capita), and the specific formulation depends on the value of the vehicle function switch (vehfuncsw). If the value is 1, GDP/capita alone drives sales per capita. If the value is 3, GDP/capita and values on the traditional/secular-rational dimension drive sales per capita. If the value is 4, GDP/capita and values on the traditional/secular-rational and survival/self-expression dimensions drive sales per capita.



Sales per capita determined by GDP per capita

Future development may focus not just on annual car and truck sales, but on the fleets of each. Variables for fleet size and per capita fleet size are therefore shown above, but not yet used.

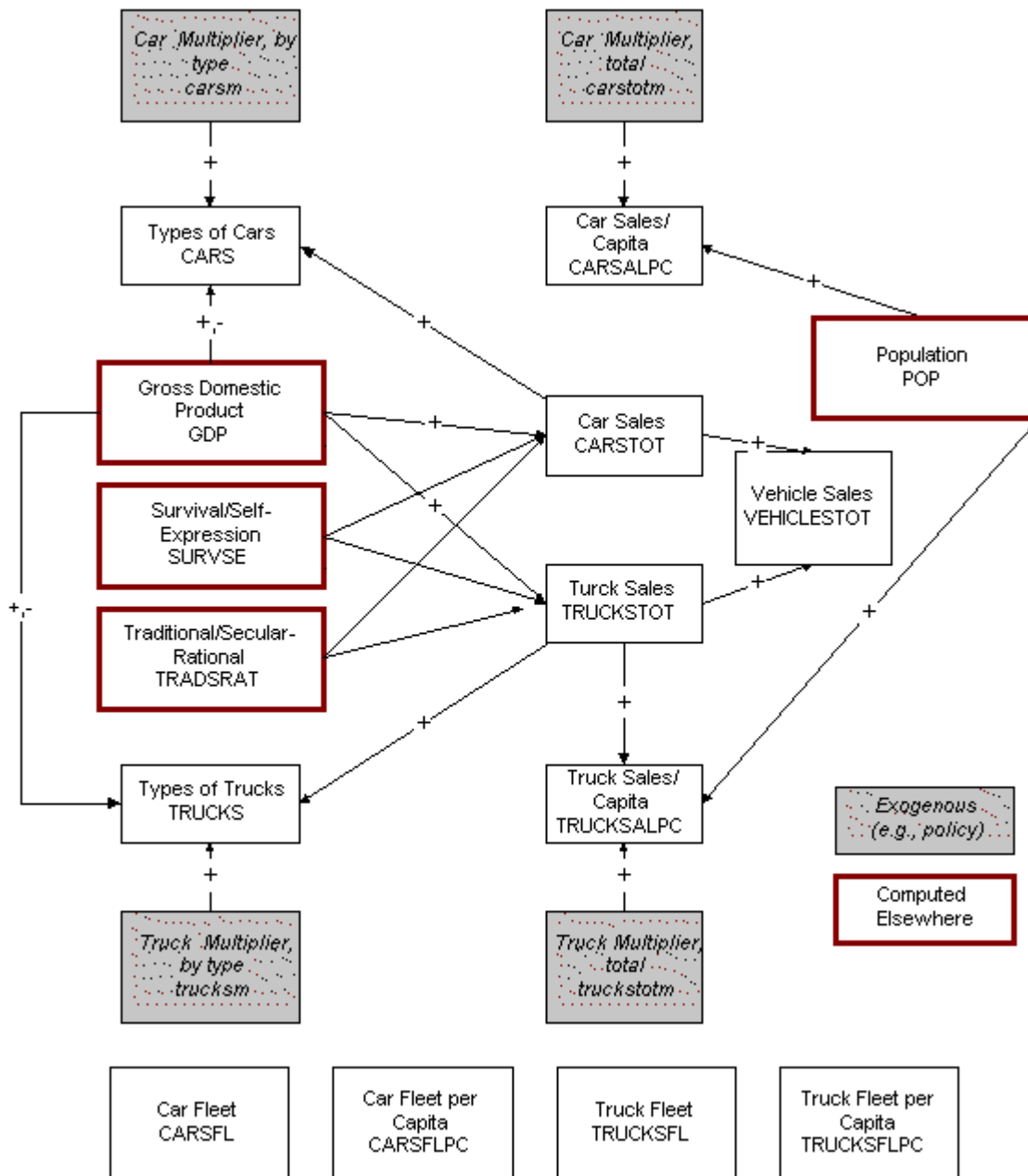
Cars and Trucks: Approach 2 (Total)

As the equations elaborate, there are two general approaches and four specific options for determining the annual demand of countries/regions for cars and trucks and therefore the annual new sales of those vehicles.

GDP per capita at purchasing power parity is the primary driver of sales per capita in most of those options. It is also possible, however, to have car/truck sales driven directly by GDP, which is the logic portrayed below. The specific logic/formulation depends on the value of the vehicle function switch (vehfuncsw). When the value is 2, sales are driven directly by GDP, as shown here. In addition, sales are affected by country/region values on the traditional/secular-rational value dimension. Although the model does not include the

survival/self-expression dimension in this particular logic (estimated functions did not show it adding much predictive power), the causal diagram portrays it as a possible driver.

Functions that indicate whether individual types of cars or trucks are "inferior" or "superior" goods, that is whether they decrease or increase with incomes, then determine how total car and truck sales are split across individual categories of cars and trucks.



Car/truck sales driven directly by GDP

Future development may focus not just on annual car and truck sales, but on the fleets of each. Variables for fleet size and per capita fleet size are therefore shown above, but not yet used.

Transportation Equations

Overview

Not available at this time.

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