COMET Corrected

SPEA

January 2018
Overview

- The COMET model described in section 7.4 of the IU report - A Macroeconomic Study of Federal and State Automotive Regulations with Recommendations for Analysts, Regulators, and Legislators - produces several outputs. One of them is the price premium, which serves as an input to the COMET scenarios in both the TCO and REMI models.

- The IU team discovered an error in the COMET price premium input file that feeds into the TCO and REMI models.

- The IU team has since corrected this transcription error and produced new TCO and REMI results. Because the COMET price premium is much lower than the COMET average vehicle cost, the corrected TCO results for COMET show that CAFE has a smaller negative impact on vehicle sales than published in the IU report. The corrected REMI results also show smaller negative impacts on total employment, GDP, and disposable income.
Objective

- Attached are the figures and tables that are affected by the transcription error.
- Each original graph published in our report is paired with a graph based on the correct price premium.
- The only difference between the Figures labeled “Original” and “Corrected” is the COMET scenario. All other scenarios are unaffected.

TCO results
Figure ES2 scenarios and assumptions (Source: Carley et al. 2017; p.5)

Figure ES2 shows the percentage change in vehicle sales due to regulatory programs based on four perspectives. Baseline is drawn from NHTSA’s 2012 data, and represents the 2012 perspective. The remaining lines represent the alternative 2016 perspectives. Of the three 2016 perspectives, COMET alone accounts for the interdependence between CAFE and ZEV. Consumer valuation of fuel savings differs between the 2012 and 2016 perspectives: baseline assumes that consumers value five years’ worth of fuel savings, perceive resale value equal to 35% of gross price premium, and perceive future fuel price equal to the AEO projections. The 2016 perspective assumes that consumers value three years of fuel savings, perceive future fuel price equal to fuel price at time of vehicle purchase, and set the incremental resale value to 35% of the gross premium. Gross price premium is equal to: NHTSA 2012 projections in the baseline; NHTSA 2012 plus DOE estimate of ZEV plus NRC “low most likely” adjustment in 2016 PP Low; and NHTSA 2012 plus TAR estimate of ZEV plus NRC “high most likely” adjustment in 2016 PP High. The gross premium in COMET is obtained directly from the COMET model and accounts for ZEV and some NRC adjustments.
Figure ES2: Percentage Change in Car Sales - Original
Figure ES2: Percentage Change in Car Sales - Corrected
Reported in both Figures 9.3a and 9.3b is the percentage change in truck sales due to the regulatory programs under various assumptions about how the ZEV regulation is met. Baseline uses the price premium under the 2012 perspective using NHTSA’s data, and omits the ZEV regulation. The other line shows the effect of the CAFE plus ZEV on truck sales using price premiums obtained from the COMET model. COMET assumes ZEV is satisfied with BEV75s. Notice also that the COMET premiums include some NRC adjustments.
Figure 9.3a: Impact of ZEV Regulation on Car Sales by Model Year - Original
Figure 9.3a: Impact of ZEV Regulation on Car Sales by Model Year - Corrected
Figure 9.3b: Impact of ZEV Regulation on Truck Sales by Model Year - Original
Figure 9.3b: Impact of ZEV Regulation on Truck Sales by Model Year - Corrected
Reported in both Figures 9.8a and 9.8b is the percentage change in vehicle sales due to the regulatory programs based on our four perspectives. Baseline is based on NHTSA’s 2012 data, and represents the 2012 perspective. The remaining lines represent the alternative 2016 perspectives. COMET accounts for the interdependence between CAFE and ZEV while the other 2016 perspectives do not account for this interdependence. Consumer valuation of fuel savings differs between the 2012 and 2016 perspectives: Baseline assumes that consumers value five years’ worth of fuel savings, perceive resale value equal to 35% of gross price premium, and perceive future fuel price equal to the AEO projections. The 2016 perspectives assume the consumer values three years of fuel savings, perceive future fuel price equal to fuel price at time of vehicle purchase, and perceive the incremental resale value to equal 35% of the gross premium. Gross price premium is equal to the NHTSA 2012 projections in the baseline; NHTSA 2012 plus DOE estimate of ZEV plus NRC “low most likely” adjustment in 2016 PP Low; and NHTSA 2012 plus TAR estimate of ZEV plus NRC “high most likely” adjustment in 2016 PP High. The gross premiums in COMET are obtained directly from the COMET model account for ZEV and some NRC adjustments. The premium for trucks does not account for ZEV.
Figure 9.8a: Percentage Change in Car Sales by Model Year; Illustration of CAFE/ZEV Interdependence - Original
Figure 9.8a: Percentage Change in Car Sales by Model Year; Illustration of CAFE/ZEV Interdependence - Corrected
Figure 9.8b: Percentage Change in Truck Sales by Model Year; Illustration of CAFE/ZEV Interdependence - Original
Figure 9.8b: Percentage Change in Truck Sales by Model Year; Illustration of CAFE/ZEV Interdependence - Corrected
REMI results
Those Figures include five different scenarios each. The first, “2012 EPA”, uses data published in the Environmental Protection Agency’s 2012 Regulatory Impact Assessment (RIA) and does not include the ZEV standard. The second, “2012 NHTSA”, similarly uses data from the National Highway Traffic and Safety Administration’s 2012 RIA and does not include the ZEV standard. These two scenarios represent the “2012 perspective”, whereas the remaining three represent the “2016 perspective”. The “2016 Low” and “2016 High” scenarios are based on NHTSA “2016 perspective” data, including fuel price adjustments, NRC (2015a) technology cost adjustments (one of a smaller magnitude and the other of a larger magnitude), and does include the ZEV standard. Finally, the “2016 COMET” is based on technology costs produced through the Cost Optimization Modeling for Efficiency Technologies (COMET) model, using EPA data, as well as fuel price adjustments. All five scenarios include three causal mechanisms to capture the impacts of federal and state regulations: (1) a price premium; (2) a corresponding investment in supply chain innovation; and 3) savings from reduced gasoline expenditures.
Figure 8.3: Difference in Employment Between Baseline and Price Premium Scenarios - Original
Figure 8.3: Difference in Employment Between Baseline and Price Premium Scenarios - Corrected
Figure 8.4: Difference in GDP Between Baseline and Price Premium Scenarios - Original

- 2012 EPA
- 2012 NHTSA
- 2016 Low
- 2016 High
- 2016 COMET
Figure 8.4: Difference in GDP Between Baseline and Price Premium Scenarios - Corrected
Figure 8.5: Difference in Disposable Personal Income Between Baseline and Price Premium Scenarios - Original
Figure 8.5: Difference in Disposable Personal Income Between Baseline and Price Premium Scenarios - Corrected
Figure 8.7: Difference in Employment Between Baseline and Automobile Supply Chain Innovation Scenarios - Original
Figure 8.7: Difference in Employment Between Baseline and Automobile Supply Chain Innovation Scenarios - Corrected
Figure 8.8: Difference in GDP Between Baseline and Automobile Supply Chain Innovation Scenarios - Original
Figure 8.8: Difference in GDP Between Baseline and Automobile Supply Chain Innovation Scenarios - Corrected
Figure 8.9: Difference in Disposable Personal Income Between Baseline and Automobile Supply Chain Innovation Scenarios - Original
Figure 8.9: Difference in Disposable Personal Income Between Baseline and Automobile Supply Chain Innovation Scenarios - Corrected
Figure 8.16: Difference in Employment Between Baseline and Combined Regulatory Scenarios - Original
Figure 8.16: Difference in Employment Between Baseline and Combined Regulatory Scenarios - Corrected
Figure 8.17: Difference in GDP Between Baseline and Combined Regulatory Scenarios - Original
Figure 8.17: Difference in GDP Between Baseline and Combined Regulatory Scenarios - Corrected
Figure 8.18: Difference in Disposable Personal Income Between Baseline and Combined Regulatory Scenarios - Original
Figure 8.18: Difference in Disposable Personal Income Between Baseline and Combined Regulatory Scenarios - Corrected
Table 8.1: Macroeconomic Modeling Results, Cumulative 2017-2025 and 2017-2035

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2017 - 2025</th>
<th>2017 - 2035</th>
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<tbody>
<tr>
<td>GDP - Original</td>
<td>-92.6</td>
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<td>GDP - Corrected</td>
<td>-70.9</td>
<td>-27.1</td>
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<td>PDI - Original</td>
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<td>PDI - Corrected</td>
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</tbody>
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Note: These results pertain to the COMET scenario only. GDP and PDI are in billions of 2009 dollars.